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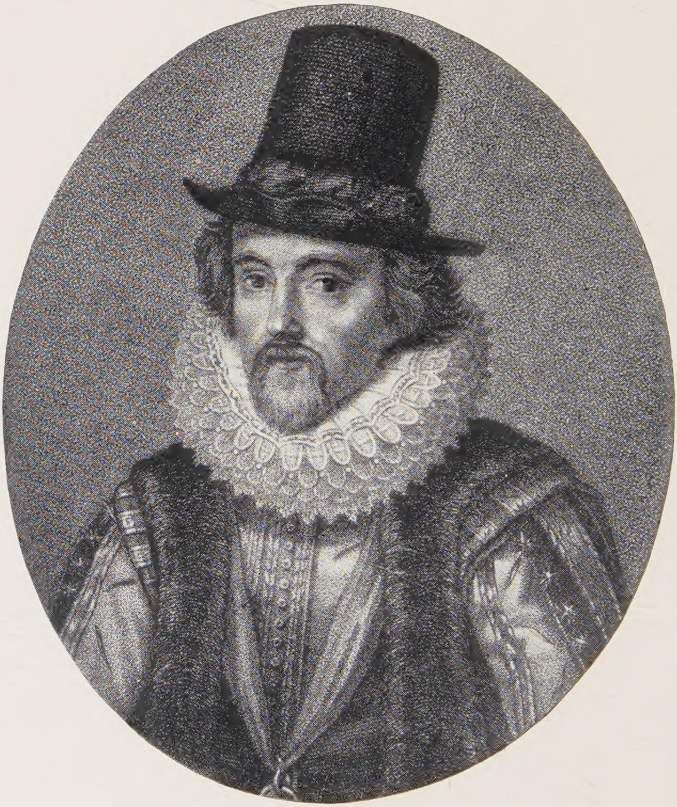

SIR FRANCIS BACON

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IN FOUR PARTS

Comprising Science, Biography, Fiction and the Great Orations

PART ONE—SCIENCE

Advancement of Learning

BY

LORD BACON

Edited by JOSEPH DEVEY, M.A.

NEW YORK
P. F. COLLIER AND SON
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SCIENCE

VOLUME TWENTY-ONE

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FRANCIS BACON

FRANCIS BACON, one of the greatest names in English history, was born in London, January 22, 1561. He was the youngest son of Sir Nicholas Bacon, who for twenty years had held the seals as Lord Keeper. His mother was a daughter of Sir Anthony Cooke, and one of her sisters was married to the famous Lord Treasurer, Burghley, ancestor of the present Marquis of Salisbury. In 1573 he entered Trinity College, Cambridge, and resided there three years, after which he travelled for the same length of time upon the Continent. On the death of his father in 1579 he returned to England and began his life in comparative poverty. In 1582 he was admitted to the bar, and two years later secured a seat in Parliament. His advancement was slow, but he ultimately became King's Counsel, and in 1607 was made Solicitor-General. Six years later he became Attorney-General and in 1617 obtained the Great Seal with the title of Lord Keeper. In the following year he received the higher title of Lord Chancellor, and was made Baron Verulam; in 1621 he was created Viscount St. Albans. It is well known that in the last-named year, he was tried for bribery and corruption, and was sentenced to fine and imprisonment. We are not here directly concerned with Bacon's career as a lawyer, politician, courtier and man of letters, and consequently pass at once to his place in science and philosophy. Of his many scientific

and philosophical treatises it is generally conceded that "The Advancement of Learning" and the "Novum Organum" are the most valuable, and we have, accordingly, selected them for reproduction. There is no doubt that Bacon, the first great teacher of the inductive method in modern times, shares with Descartes the honor of inaugurating modern philosophy. This position Bacon owes not only to the general spirit of his philosophy but to the manner in which he worked into a connected system the new mode of thinking, and to the incomparable power and eloquence with which he expounded and enforced it. Like all epoch-making works, the "Novum Organum" gave expression to ideas which were already beginning to be in the air. The time was ripe for a great change. Scholasticism, long decaying, had begun to fall; while here and there a few devoted experimenters were turning with fresh zeal to the unwithered face of nature. The fruitful thoughts which lay under and gave rise to these scattered efforts of the human mind, were gathered up into unity and reduced to system in the new philosophy of Bacon. A long line of thinkers have drawn inspiration from him, and it is not without justice that he has been looked upon as the originator and guiding spirit of that empirical school which numbers among its adherents such names as Hobbes, Locke, Hume, Hartley, Mill, Condillac and the Encyclopedists.

PREFACE

Lord Bacon can only be said to have carried the first three parts of his "Instauratio Magna" to any degree of perfection. Of these the "Sylva Sylvarum" is but a dry catalogue of natural phenomena, the collection of which, however necessary it might be, Bacon viewed as a sort of mechanical labor, and would never have stooped to the task, had not the field been abandoned by the generality of philosophers, as unworthy of them. The two other portions of the "Instauratio Magna," which these volumes contain, unfold the design of his philosophy, and exhibit all the peculiarities of his extraordinary mind, enshrined in the finest passages of his writings.

Of the "De Augmentis," though one of the greatest books of modern times, only three translations have appeared, and each of these strikingly imperfect. That of Wats, issued while Bacon was living, is singularly disfigured with solecisms, and called forth the just censures of Bacon and his friends. The version of Eustace Cary is no less unfortunate, owing to its poverty of diction, and antiquated phraseology. Under the public sense of these failures, another translation was produced about sixty years ago by Dr. Shaw, which might have merited approbation,

had not the learned physician been impressed with the idea that he could improve Bacon by relieving his work of some of its choicest passages, and entirely altering the arrangement. In the present version, our task has been principally to rectify Shaw's mistakes, by restoring the author's own arrangement, and supplying the omitted portions. Such of Shaw's notes as were deemed of value have been retained, and others added where the text seemed to require illustration. Due care also has been taken to point out the sources whence Bacon drew his extraordinary stores of learning, by furnishing authorities for the quotations and allusions in the text, so that the reader may view at a glance the principal authors whom Bacon loved to consult, and whose agency contributed to the formation of his colossal powers.

The version of the "Novum Organum" contained in this set is that by Wood, which is the best extant. The present edition of this immortal work has been enriched with an ample commentary, in which the remarks of the two Playfairs, Sir John Herschel, and the German and French editors, have been diligently consulted, that nothing may be wanting to render it as perfect as possible.

J. D.

FRANCIS OF VERULAM'S

GREAT INSTAURATION

ANNOUNCEMENT OF THE AUTHOR

FRANCIS OF VERULAM THOUGHT THUS, AND SUCH IS THE METHOD WHICH HE DETERMINED WITHIN HIMSELF, AND WHICH HE THOUGHT IT CONCERNED THE LIVING AND POSTERITY TO KNOW

BEING convinced, by a careful observation, that the human understanding perplexes itself, or makes not a sober and advantageous use of the real helps within its reach, whence manifold ignorance and inconveniences arise, he was determined to employ his utmost endeavors toward restoring or cultivating a just and legitimate familiarity between the mind and things.

But as the mind, hastily and without choice, imbibes and treasures up the first notices of things, from whence all the rest proceed, errors must forever prevail, and remain uncorrected, either by the natural powers of the understanding or the assistance of logic; for the original notions being vitiated, confused, and inconsiderately taken from things, and the secondary ones formed no less rashly, human knowledge itself, the thing employed in all our researches, is not well put together nor justly formed, but resembles a magnificent structure that has no foundation.

And while men agree to admire and magnify the false powers of the mind, and neglect or destroy those that might be rendered true, there is no other course left but

with better assistance to begin the work anew, and raise or rebuild the sciences, arts, and all human knowledge from a firm and solid basis.

This may at first seem an infinite scheme, unequal to human abilities, yet it will be found more sound and judicious than the course hitherto pursued, as tending to some issue; whereas all hitherto done with regard to the sciences is vertiginous, or in the way of perpetual rotation.

Nor is he ignorant that he stands alone in an experiment almost too bold and astonishing to obtain credit, yet he thought it not right to desert either the cause or himself, but to boldly enter on the way and explore the only path which is pervious to the human mind. For it is wiser to engage in an undertaking that admits of some termination, than to involve one's self in perpetual exertion and anxiety about what is interminable. The ways of contemplation, indeed, nearly correspond to two roads in nature, one of which, steep and rugged at the commencement, terminates in a plain; the other, at first view smooth and easy, leads only to huge rocks and precipices. Uncertain, however, whether these reflections would occur to another, and observing that he had never met any person disposed to apply his mind to similar thoughts, he determined to publish whatsoever he found time to perfect. Nor is this the haste of ambition, but anxiety, that if he should die there might remain behind him some outline and determination of the matter his mind had embraced, as well as some mark of his sincere and earnest affection to promote the happiness of mankind.

AUTHOR'S PREFACE

Of the state of learning—That it is neither prosperous nor greatly advanced, and that a way must be opened to the human understanding entirely distinct from that known to our predecessors, and different aids procured, that the mind may exercise her power over the nature of things

IT APPEARS to me that men know neither their acquirements nor their powers, but fancy their possessions greater and their faculties less than they are; whence, either valuing the received arts above measure, they look out no further; or else despising themselves too much, they exercise their talents upon lighter matters, without attempting the capital things of all. And hence the sciences seem to have their Hercules' Pillars, which bound the desires and hopes of mankind.

But as a false imagination of plenty is among the principal causes of want, and as too great a confidence in things present leads to a neglect of the future, it is necessary we should here admonish mankind that they do not too highly value or extol either the number or usefulness of the things hitherto discovered; for, by closely inspecting the multiplicity of books upon arts and sciences, we find them to contain numberless repetitions of the same things in point of invention, but differing indeed as to the manner of treatment; so that the real discoveries, though at the first view they may appear numerous, prove upon examination but few. And as to the point of usefulness, the philosophy we principally received from the Greeks must be acknowledged puerile, or rather talkative than generative—as being fruitful in controversies, but barren of effects.

The fable of Scylla seems a civil representation of the present condition of knowledge; for she exhibited the coun-

tenance and expression of a virgin, while barking monsters encircled her womb. Even thus the sciences have their specious and plausible generalities; but when we descend to particulars, which, like the organs of generation, should produce fruits and effects, then spring up loud altercations and controversies, which terminate in barren sterility. And had this not been a lifeless kind of philosophy, it were scarce possible it should have made so little progress in so many ages, insomuch, that not only positions now frequently remain positions still, but questions remain questions, rather riveted and cherished than determined by disputes; philosophy thus coming down to us in the persons of master and scholar, instead of inventor and improver. In the mechanic arts the case is otherwise—these commonly advancing toward perfection in a course of daily improvement, from a rough unpolished state, sometimes prejudicial to the first inventors, while philosophy and the intellectual sciences are, like statues, celebrated and adored, but never advanced; nay, they sometimes appear most perfect in the original author, and afterward degenerate. For since men have gone over in crowds to the opinion of their leader, like those silent senators of Rome,[1] they add nothing to the extent of learning themselves, but perform the servile duty of waiting upon particular authors, and repeating their doctrines.

It is a fatal mistake to suppose that the sciences have gradually arrived at a state of perfection, and then been recorded by some one writer or other; and that as nothing better can afterward be invented, men need but cultivate and set off what is thus discovered and completed; whereas, in reality, this registering of the sciences proceeds only from the assurance of a few and the sloth and ignorance of many. For after the sciences might thus perhaps in several parts be carefully cultivated; a man of an enterprising genius rising up, who, by the conciseness of his

[1] Pedarii senatores.

method, renders himself acceptable and famous, he in appearance erects an art, but in reality corrupts the labors of his predecessors. This, however, is usually well received by posterity, as readily gratifying their curiosity, and indulging their indolence. But he that rests upon established consent as the judgment approved by time, trusts to a very fallacious and weak foundation; for we have but an imperfect knowledge of the discoveries in arts and sciences, made public in different ages and countries, and still less of what has been done by particular persons, and transacted in private; so that neither the births nor miscarriages of time are to be found in our records.

Nor is consent, or the continuance thereof, a thing of any account, for however governments may vary, there is but one state of the sciences, and that will forever be democratical or popular. But the doctrines in greatest vogue among the people, are either the contentious and quarrelsome, or the showy and empty; that is, such as may either entrap the assent, or lull the mind to rest; whence, of course, the greatest geniuses in all ages have suffered violence; while out of regard to their own character they submitted to the judgment of the times, and the populace. And thus when any more sublime speculations happened to appear, they were commonly tossed and extinguished by the breath of popular opinion. Hence time, like a river, has brought down to us what is light and tumid, but sunk what was ponderous and solid. As to those who have set up for teachers of the sciences, when they drop their character, and at intervals speak their sentiments, they complain of the subtilty of nature, the concealment of truth, the obscurity of things, the entanglement of causes, and the imperfections of the human understanding; thus rather choosing to accuse the common state of men and things, than make confession of themselves. It is also frequent with them to adjudge that impossible in an art, which they find that art does not affect; by which means they screen indolence and ignorance from the reproach they merit. The knowledge

delivered down to us is barren in effects, fruitful in questions, slow and languid in improvement, exhibiting in its generalities the counterfeits of perfection, but meagre in its details, popular in its aim, but suspected by its very promoters, and therefore defended and propagated by artifice and chicanery. And even those who by experience propose to enlarge the bounds of the sciences, scarce ever entirely quit the received opinions, and go to the fountain-head, but think it enough to add somewhat of their own; as prudentially considering, that at the time they show their modesty in assenting, they may have a liberty of adding. But while this regard is shown to opinions and moral considerations, the sciences are greatly hurt by such a languid procedure; for it is scarce possible at once to admire and excel an author; as water rises no higher than the reservoir it falls from. Such men, therefore, though they improve some things, yet advance the sciences but little, or rather amend than enlarge them.

There have been also bolder spirits, and greater geniuses, who thought themselves at liberty to overturn and destroy the ancient doctrine, and make way for themselves and their opinions; but without any great advantage from the disturbance; as they did not effectively enlarge philosophy and arts by practical works, but only endeavored to substitute new dogmas, and to transfer the empire of opinion to themselves, with but small advantage; for opposite errors proceed mostly from common causes.

As for those who, neither wedded to their own nor others' opinions, but continuing friends to liberty, made use of assistance in their inquiries, the success they met with did not answer expectation, the attempt, though laudable, being but feeble; for pursuing only the probable reasons of things, they were carried about in a circle of arguments, and taking a promiscuous liberty, preserved not the rigor of true inquirers; while none of them duly conversed with experience and things themselves. Others again, who commit themselves to mechanical experience,

yet make their experiments at random, without any method of inquiry. And the greatest part of these have no considerable views, but esteem it a great matter if they can make a single discovery; which is both a trifling and unskilful procedure, as no one can justly or successfully discover the nature of any one thing in that thing itself, or without numerous experiments which lead to further inquiries. And we must not omit to observe that all the industry displayed in experiment has been directed by too indiscreet a zeal at some prejudged effect, seeking those which produced fruit rather than knowledge, in opposition to the Divine method, which on the first day created time alone, delaying its material creations until the sun had illumined space.

Lastly, those who recommend logic as the best and surest instrument for improving the sciences, very justly observe, that the understanding, left to itself, ought always to be suspected. But here the remedy is neither equal to the disease, nor approved; for though the logic in use may be properly applied in civil affairs, and the arts that are founded in discourse and opinion, yet it by no means reaches the subtilty of nature; and by catching at what it cannot hold, rather serves to establish errors and fix them, deeper than open the way of truth.[2]

Upon the whole, men do not hitherto appear to be happily inclined and fitted for the sciences, either by their own industry, or the authority of authors, especially as there is little dependence to be had upon the common demonstrations and experiments; while the structure of the universe renders it a labyrinth to the understanding; where the paths are not only everywhere doubtful, but the appearances of things and their signs deceitful; and the wreaths and knots of nature intricately turned and twisted;[3] through all which

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[2] For exemplifications of these opinions, the reader may consult Morhof's "Polyhistor.," and the other writers upon polymathy and literary history.—*Shaw.*

[3] By wreaths and knots, is understood the apparent complication of causes, and the superaddition of properties not essential to things; as light to heat, yellowness to gold, pellucidity to glass, etc.—*Ib.*

we are only to be conducted by the uncertain light of the senses that sometimes shines, and sometimes hides its head; and by collections of experiments and particular facts, in which no guides can be trusted, as wanting direction themselves, and adding to the errors of the rest. In this melancholy state of things, one might be apt to despair both of the understanding left to itself, and of all fortuitous helps; as of a state irremediable by the utmost efforts of the human genius, or the often-repeated chance of trial. The only clew and method is to begin all anew, and direct our steps in a certain order, from the very first perceptions of the senses. Yet I must not be understood to say that nothing has been done in former ages, for the ancients have shown themselves worthy of admiration in everything which concerned either wit or abstract reflection; but, as in former ages, when men at sea, directing their course solely by the observation of the stars, might coast along the shores of the continent, but could not trust themselves to the wide ocean, or discover new worlds, until the use of the compass was known; even so the present discoveries referring to matters immediately under the jurisdiction of the senses, are such as might easily result from experience and discussion; but before we can enter the remote and hidden parts of nature, it is requisite that a better and more perfect application of the human mind should be introduced. This, however, is not to be understood as if nothing had been effected by the immense labors of so many past ages; as the ancients have performed surprisingly in subjects that required abstract meditation, and force of genius. But as navigation was imperfect before the use of the compass, so will many secrets of nature and art remain undiscovered, without a more perfect knowledge of the understanding, its uses, and ways of working.

For our own part, from an earnest desire of truth, we have committed ourselves to doubtful, difficult, and solitary ways; and, relying on the Divine assistance, have supported our minds against the vehemence of opinions, our own in-

ternal doubts and scruples, and the darkness and fantastic images of the mind; that at length we might make more sure and certain discoveries for the benefit of posterity. And if we shall have effected anything to the purpose, what led us to it was a true and genuine humiliation of mind. Those who before us applied themselves to the discovery of arts, having just glanced upon things, examples, and experiments; immediately, as if invention was but a kind of contemplation, raised up their own spirits to deliver oracles: whereas our method is continually to dwell among things soberly, without abstracting or setting the understanding further from them than makes their images meet; which leaves but little work for genius and mental abilities. And the same humility that we practice in learning, the same we also observe in teaching, without endeavoring to stamp a dignity on any of our inventions, by the triumphs of confutation, the citations of antiquity, the producing of authorities, or the mask of obscurity; as any one might do, who had rather give lustre to his own name, than light to the minds of others. We offer no violence, and spread no nets for the judgments of men, but lead them on to things themselves, and their relations; that they may view their own stores, what they have to reason about, and what they may add, or procure, for the common good. And if at any time ourselves have erred, mistook, or broke off too soon, yet as we only propose to exhibit things naked, and open, as they are, our errors may be the readier observed, and separated, before they considerably infect the mass of knowledge; and our labors be the more easily continued. And thus we hope to establish forever a true and legitimate union between the experimental and rational faculty, whose fallen and inauspicious divorces and repudiations have disturbed everything in the family of mankind.

But as these great things are not at our disposal, we here, at the entrance of our work, with the utmost humility and fervency, put forth our prayers to God, that remembering the miseries of mankind, and the pilgrimage of this life,

where we pass but few days and sorrowful, he would vouchsafe through our hands, and the hands of others, to whom he has given the like mind, to relieve the human race by a new act of his bounty. We likewise humbly beseech him that what is human may not clash with what is divine; and that when the ways of the senses are opened, and a greater natural light set up in the mind, nothing of incredulity and blindness toward divine mysteries may arise; but rather that the understanding, now cleared up, and purged of all vanity and superstition, may remain entirely subject to the divine oracles, and yield to faith, the things that are faith's: and lastly, that expelling the poisonous knowledge infused by the serpent, which puffs up and swells the human mind, we may neither be wise above measure, nor go beyond the bounds of sobriety, but pursue the truth in charity.

We now turn ourselves to men, with a few wholesome admonitions and just requests. And first, we admonish them to continue in a sense of their duty, as to divine matters; for the senses are like the sun, which displays the face of the earth, but shuts up that of the heavens: and again, that they run not into the contrary extreme, which they certainly will do, if they think an inquiry into nature any way forbid them by religion. It was not that pure and unspotted natural knowledge whereby Adam gave names to things, agreeable to their natures, which caused his fall; but an ambitious and authoritative desire of moral knowledge, to judge of good and evil, which makes men revolt from God, and obey no laws but those of their own will. But for the sciences, which contemplate nature, the sacred philosopher declares, "It is the glory of God to conceal a thing, but the glory of a king to find it out."[4] As if the Divine Being thus indulgently condescended to exercise the human mind by philosophical inquiries.

In the next place, we advise all mankind to think of the true ends of knowledge, and that they endeavor not after

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[4] Prov. xxv. 2.

it for curiosity, contention, or the sake of despising others, nor yet for profit, reputation, power, or any such inferior consideration, but solely for the occasions and uses of life; all along conducting and perfecting it in the spirit of benevolence. Our requests are—1. That men do not conceive we here deliver an opinion, but a work; and assure themselves we attempt not to found any sect or particular doctrine, but to fix an extensive basis for the service of human nature. 2. That, for their own sakes, they lay aside the zeal and prejudices of opinions, and endeavor the common good; and that being, by our assistance, freed and kept clear from the errors and hindrances of the way, they would themselves also take part of the task. 3. That they do not despair, as imagining our project for a grand restoration, or advancement of all kinds of knowledge, infinitely beyond the power of mortals to execute; while in reality, it is the genuine stop and prevention of infinite error. Indeed, as our state is mortal, and human, a full accomplishment cannot be expected in a single age, and must therefore be commended to posterity. Nor could we hope to succeed, if we arrogantly searched for the sciences in the narrow cells of the human understanding, and not submissively in the wider world. 4. In the last place, to prevent ill effects from contention, we desire mankind to consider how far they have a right to judge our performance, upon the foundations here laid down: for we reject all that knowledge which is too hastily abstracted from things, as vague, disorderly, and ill-formed; and we cannot be expected to abide by a judgment which is itself called in question.

DISTRIBUTION OF THE WORK

IN SIX PARTS

1. Survey and Extension of the Sciences; or, the Advancement of Learning.
2. Novum Organum; or, Precepts for the Interpretation of Nature.
3. Phenomena of the Universe; or, Natural and Experimental History, on which to found Philosophy.
4. Ladder of the Understanding.
5. Precursors, or Anticipators, of the Second Philosophy.
6. Second Philosophy; or, Active Science.

We divide the whole of the work into six parts: the first whereof gives the substance, or general description of the knowledge which mankind at present possess; choosing to dwell a little upon things already received, that we may the easier perfect the old, and lead on to new; being equally inclined to cultivate the discoveries of antiquity, as to strike out fresh paths of science. In classing the sciences, we comprehend not only the things already invented and known, but also those omitted and wanted; for the intellectual globe, as well as the terrestrial, has both its frosts and deserts. It is therefore no wonder if we sometimes depart from the common divisions. For an addition, while it alters the whole, must necessarily alter the parts and their sections; whereas the received divisions are only fitted to the received sum of the sciences, as it now stands. With regard to the things we shall note as defective; it will be our method to give more than the bare titles, or short heads of what we desire to have done; with particular care, where the dignity or difficulty of the subject requires it, either to lay down the rules for effecting the work, or make an attempt of our own, by way of example, or pattern, of the whole. For it concerns our own character, no less than the advantage of others, to know that a mere capricious idea has not presented the subject to our mind, and that all we desire and aim at is a wish. For our designs are

within the power of all to compass, and we ourselves have certain and evident demonstrations of their utility. We come not hither, as augurs, to measure out regions in our mind by divination, but like generals, to invade them for conquest. And this is the first part of the work.

When we have gone through the ancient arts, we shall prepare the human understanding for pressing on beyond them. The second object of the work embraces the doctrine of a more perfect use of reason, and the true helps of the intellectual faculties, so as to raise and enlarge the powers of the mind; and, as far as the condition of humanity allows, to fit it to conquer the difficulties and obscurities of nature. The thing we mean, is a kind of logic, by us called The Art of interpreting Nature; as differing widely from the common logic, which, however, pretends to assist and direct the understanding, and in that they agree: but the difference between them consists in three things, viz., the end, the order of demonstrating, and the grounds of inquiry.

The end of our new logic is to find, not arguments, but arts; not what agrees with principles, but principles themselves: not probable reasons, but plans and designs of works—a different intention producing a different effect. In one the adversary is conquered by dispute, and in the other nature by works. The nature and order of the demonstrations agree with this object. For in common logic, almost our whole labor is spent upon the syllogism. Logicians hitherto appear scarcely to have noticed induction, passing it over with some slight comment. But we reject the syllogistic method as being too confused, and allowing nature to escape out of our hands. For though nobody can doubt that those things which agree with the middle term agree with each other, nevertheless, there is this source of error, that a syllogism consists of propositions, propositions of words, and words are but the tokens and signs of things. Now, if the first notions, which are, as it were, the soul of words, and the basis of every philosophical fabric, are hastily abstracted from things, and vague and not clearly

defined and limited, the whole structure falls to the ground. We therefore reject the syllogism, and that not only as regards first principles, to which logicians do not apply them, but also with respect to intermediate propositions, which the syllogism contrives to manage in such a way as to render barren in effect, unfit for practice, and clearly unsuited to the active branch of the sciences. Nevertheless, we would leave to the syllogism, and such celebrated and applauded demonstrations, their jurisdiction over popular and speculative acts; while, in everything relating to the nature of things, we make use of induction for both our major and minor propositions; for we consider induction as that form of demonstration which closes in upon nature and presses on, and, as it were, mixes itself with action. Whence the common order of demonstrating is absolutely inverted; for instead of flying immediately from the senses, and particulars, to generals, as to certain fixed poles, about which disputes always turn, and deriving others from these by intermediates, in a short, indeed, but precipitate manner, fit for controversy, but unfit to close with nature; we continually raise up propositions by degrees, and in the last place, come to the most general axioms, which are not notional, but well defined, and what nature allows of, as entering into the very essence of things.[1]

[1] This passage, though tersely and energetically expressed, is founded upon a misconception of deduction, or, as Bacon phrases it, syllogistic reasoning, and its relation to induction. The two processes are only reverse methods of inferences, the one concluding from a general to a particular, and the other from a particular to a general, and both schemata are resolvable into propositions, and propositions into words, which, as he says, are but the tokens and signs of things. Now if these first notions, which are as it were the soul of words and the basis of every philosophic fabric, be hastily abstracted from things, and vague and not clearly defined and limited, the whole structure, whether erected by induction or deduction, or both, as is most frequently the case, must fall to the ground. The error, therefore, does not lie in the deductive mode of proof, without which physical science could never advance beyond its empirical stage, but in clothing this method in the vulgar language of the day, and reasoning upon its terms as if they pointed at some fact or antithesis in nature, instead of previously testing the accuracy of such expressions by experiment and observation. As such notions are more general than the individual cases out of which they arise, it follows that this inquiry must be made through the medium of induction, and the essential merit of Bacon lies in framing a system of rules by which this ascending scale of inference may be secured from error. As the

But the more difficult part of our task consists in the form of induction, and the judgment to be made by it; for that form of the logicians which proceeds by simple enumeration, is a childish thing, concludes unsafely, lies open to contradictory instances, and regards only common matters, yet determines nothing: while the sciences require such a form of induction, as can separate, adjust, and verify experience, and come to a necessary determination by proper exclusions and rejections.

Nor is this all; for we likewise lay the foundations of the sciences stronger and closer, and begin our inquiries deeper than men have hitherto done, bringing those things to the test which the common logic has taken upon trust. The logicians borrow the principles of the sciences from the sciences themselves, venerate the first notions of the mind, and acquiesce in the immediate informations of the senses, when rightly disposed; but we judge, that a real logic should enter every province of the sciences with a greater authority than their own principles can give; and that such supposed principles should be examined, till they become absolutely clear and certain. As for first notions of the mind, we suspect all those that the understanding, left to itself, procures; nor ever allow them till approved and authorized by a second judgment. And with respect to the informations of the senses, we have many ways of examining them; for the senses are fallacious, though they discover their own errors; but these lie near, while the means of discovery are remote.

The senses are faulty in two respects, as they either fail

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neglect of this important preliminary to scientific investigation vitiated all the Aristotelian physics, and kept the human mind stationary for two thousand years, hardly too much praise can be conferred upon the philosopher who not only pointed out the gap but supplied the materials for its obliteration. The ardency of his nature, however, urged him to extremes, and he confounded the accuracy of the deductive method with the straw and stubble on which it attempted to erect a system of physics. In censuring intermediate propositions, Bacon appears to have been unaware that he was condemning the only forms through which reason or inference can manifest itself, and lecturing mankind on the futility of an instrument which he was employing in every page of his book.—*Ed.*

or deceive us. For there are many things that escape the senses, though ever so rightly disposed; as by the subtilty of the whole body, or the minuteness of its parts; the distance of place; the slowness or velocity of motion; the commonness of the object, etc. Neither do the senses, when they lay hold of a thing, retain it strongly; for evidence, and the informations of sense, are in proportion to a man, and not in proportion to the universe.[2] And it is a grand error to assert that sense is the measure of things.[3]

To remedy this, we have from all quarters brought together, and fitted helps for the senses; and that rather by experiments than by instruments; apt experiments being much more subtile than the senses themselves, though assisted with the most finished instruments. We, therefore, lay no great stress upon the immediate and natural percep-

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[2] Bacon held, that every perception is nothing more than the consciousness of some body acting either interiorly or from without upon that portion of the frame which is the point of contact. Hence all the knowledge we have of the material world arises from the movements which it generates in our senses. These sensations simply inform us that a wide class of objects exist independent of ourselves, which affect us in a certain manner, and do not convey into our minds the real properties of such objects so much as the effects of the relation in which they stand to our senses. Human knowledge thus becomes relative; and that which we call the relation of objects to one another is nothing more than the relation which they have to our organization. Hence as these relations of objects, either internal or exterior to the mind, vary, sensations must vary along with them, and produce, even in the same individual, a crowd of impressions either conflicting or in some measure opposed to each other. So far as these feelings concern morals, it is the business of ethics to bring them under the influence of reason, and, selecting out of them such as are calculated to dignify and elevate man's nature, to impart to them a trenchant and permanent character. As respects that portion which flow in upon the mind from the internal world, it is the peculiar province of induction as reformed by our author, to separate such as are illusory from the real, and to construct out of the latter a series of axioms, expressing in hierarchical gradation the general system of laws by which the universe is governed.—*Ed.*

[3] The doctrine of the last two paragraphs may appear contradictory to the opinion of some philosophers, who maintain the infallibility of the sense as well as of reason; but the dispute perhaps turns rather upon words than things. Father Malebranche is express, that the senses never deceive us, yet as express that they should never be trusted, without being verified; charging the errors arising in this case upon human liberty, which makes a wrong choice. See "Recherche de la Vérité," liv. i. chaps. 5–8. The difference may arise only from considering the senses in two different lights, viz., physically, or according to common use; and metaphysically, or abstractedly. The "Novum Organum" clears the whole. See also Marin Mersenus, "De la Vérité des Sciences."—*Ed.*

tions of the senses, but desire the senses to judge only of experiments, and experiments to judge of things: on which foundation, we hope to be patrons of the senses, and interpreters of their oracles. And thus we mean to procure the things relating to the light of nature, and the setting it up in the mind; which might well suffice, if the mind were as white paper. But since the minds of men are so strangely disposed, as not to receive the true images of things, it is necessary also that a remedy be found for this evil.

The idols, or false notions, which possess the mind, are either acquired or innate. The acquired arise either from the opinions or sects of philosophers, or from preposterous laws of demonstration; but the innate cleave to the nature of the understanding, which is found much more prone to error than the senses. For however men may amuse themselves, and admire, or almost adore the mind, it is certain, that like an irregular glass, it alters the rays of things, by its figure and different intersections.

The two former kinds of idols may be extirpated, though with difficulty; but this third is insuperable. All that can be done, is to point them out, and mark, and convict that treacherous faculty of the mind; lest when the ancient errors are destroyed, new ones should sprout out from the rankness of the soil: and, on the other hand, to establish this forever, that the understanding can make no judgment but by induction, and the just form thereof. Whence the doctrine of purging the understanding requires three kinds of confutations, to fit it for the investigation of truth, viz.; the confutation of philosophies, the confutation of demonstrations, and the confutation of the natural reason. But when these have been completed, and it has been clearly seen what results are to be expected from the nature of things, and the nature of the human mind, we shall have then furnished a nuptial couch for the mind and the universe, the divine goodness being our bridemaid. And let it be the prayer of our Epithalamium, that assistance to man may spring from this union, and a race of discoveries, which

will contribute to his wants and vanquish his miseries. And this is the second part of the work.

But as we propose not only to pave and show the way, but also to tread in it ourselves, we shall next exhibit the phenomena of the universe; that is, such experience of all kinds, and such a natural history, as may afford a foundation to philosophy. For as no fine method of demonstration, or form of explaining nature, can preserve the mind from error, and support it from falling; so neither can it hence receive any matter of science. Those, therefore, who determine not to conjecture and guess, but to find out and know; not to invent fables and romances of worlds, but to look into, and dissect the nature of this real world, must consult only things themselves. Nor can any force of genius, thought, or argument, be substituted for this labor, search, and inspection; not even though all the wits of men were united: this, therefore, must either be had, or the business be deserted forever. But the conduct of mankind has hitherto been such, that it is no wonder nature has not opened herself to them. For the information of the senses is treacherous and deceitful; observation careless, irregular, and accidental; tradition idle, rumorous, and vain; practice narrow and servile; experience blind, stupid, vague, and broken; and natural history extremely light and empty: wretched materials for the understanding to fashion into philosophy and the sciences! Then comes in a preposterous subtilty of augmentation and sifting, as a last remedy, that mends not the matter one jot, nor separates the errors. Whence there are absolutely no hopes of enlarging and promoting the sciences, without rebuilding them.

The first materials for this purpose must be taken from a new kind of natural history. The understanding must also have fit subjects to work upon, as well as real helps to work with. But our history, no less than our logic, differs from the common in many respects; particularly, 1. In its end or office; 2. Its collection; 3. Its subtilty; 4. Its choice; and 5. Its appointment for what is to follow.

Our natural history is not designed so much to please by its variety, or benefit by gainful experiments, as to afford light to the discovery of causes, and hold out the breasts to philosophy; for though we principally regard works, and the active parts of the sciences, yet we wait for the time of harvest, and would not reap the blade for the ear. We are well aware that axioms, rightly framed, will draw after them whole sheaves of works: but for that untimely and childish desire of seeing fruits of new works before the season, we absolutely condemn and reject it, as the golden apple that hinders the progress.

With regard to its collection; we propose to show nature not only in a free state, as in the history of meteors, minerals, plants, and animals; but more particularly as she is bound, and tortured, pressed, formed, and turned out of her course by art and human industry. Hence we would set down all opposite experiments of the mechanic and liberal arts, with many others not yet formed into arts; for the nature of things is better discovered by the torturings of art, than when they are left to themselves. Nor is it only a history of bodies that we would give; but also of their cardinal virtues, or fundamental qualities; as density, rarity, heat, cold, etc., which should be comprised in particular histories.

The kind of experiments to be procured for our history are much more subtile and simple than the common; abundance of them must be recovered from darkness, and are such as no one would have inquired after, that was not led by constant and certain tract to the discovery of causes; as being in themselves of no great use, and consequently not sought for their own sake, but with regard to works: like the letters of the alphabet with regard to discourse.

In the choice of our narratives and experiments we hope to have shown more care than the other writers of natural history; as receiving nothing but upon ocular demonstration, or the strictest scrutiny of examination; and not heightening what is delivered to increase its miraculousness, but thoroughly purging it of superstition and fable.

Besides this, we reject, with a particular mark, all those boasted and received falsehoods, which by a strange neglect have prevailed for so many ages, that they may no longer molest the sciences. For as the idle tales of nurses do really corrupt the minds of children, we cannot too carefully guard the infancy of philosophy from all vanity and superstition. And when any new or more curious experiment is offered, though it may seem to us certain and well founded; yet we expressly add the manner wherein it was made; that, after it shall be understood how things appear to us, men may beware of any error adhering to them, and search after more infallible proofs. We, likewise, all along interpose our directions, scruples and cautions; and religiously guard against phantoms and illusions.

Lastly, having well observed how far experiments and history distract the mind; and how difficult it is, especially for tender or prejudiced persons, to converse with nature from the beginning, we shall continually subjoin our observations, as so many first glances of natural history at philosophy; and this to give mankind some earnest, that they shall not be kept perpetually floating upon the waves of history; and that when they come to the work of the understanding, and the explanation of nature, they may find all things in greater readiness. This will conclude the third part.

After the understanding has been thus aided and fortified, we shall be prepared to enter upon philosophy itself. But in so difficult a task, there are certain things to be observed, as well for instruction as for present use. The first is to propose examples of inquiry and investigation, according to our own method, in certain subjects of the noblest kind, but greatly differing from each other, that a specimen may be had of every sort. By these examples we mean not illustrations of rules and precepts, but perfect models, which will exemplify the second part of this work, and represent, as it were, to the eye, the whole progress of the mind, and the continued structure and order of invention, in the most chosen subjects, after the same manner as globes and ma-

chines facilitate the more abstruse and subtile demonstrations in mathematics. We assign the fourth part of our work to these examples, which are nothing else than a particular application of the second part of our undertaking.[4]

The fifth part is only temporary, or of use but till the rest are finished; whence we look upon it as interest till the principal be paid; for we do not propose to travel hoodwinked, so as to take no notice of what may occur of use in the way. This part, therefore, will consist of such things as we have invented, experienced, or added, by the same common use of the understanding that others employ. For as we have greater hopes from our constant conversation with nature than from our force of genius, the discoveries we shall thus make may serve as inns on the road, for the mind to repose in, during its progress to greater certainties. But this, without being at all disposed to abide by anything that is not discovered, or proved, by the true form of induction. Nor need any one be shocked at this suspension of the judgment, in a doctrine which does not assert that nothing is knowable; but only that things cannot be known except in a certain order and method: while it allows particular degrees of certainty, for the sake of commodiousness and use, until the mind shall enter on the explanation of causes. Nor were those schools of philosophers,[5] who held positive truth to be unattainable, inferior to others who dogmatized at will. They did not, however, like us, prepare helps for the guidance of the senses and understanding, as we have done, but at once abolished all belief and authority, which is a totally different and almost opposite matter.

The sixth and last part of our work, to which all the rest are subservient, is to lay down that philosophy which shall flow from the just, pure and strict inquiry hitherto proposed. But to perfect this, is beyond both our abilities

[4] This part is what the author elsewhere terms *scala intellectus*, or the progress of the understanding, and was intended to be supplied by him in the way of monthly productions. See his dedication of the "History of the Winds" to Prince Charles.—*Shaw.*

[5] The later Academy, who held the ακαταληψια

and our hopes, yet we shall lay the foundations of it, and recommend the superstructure to posterity. We design no contemptible beginning to the work; and anticipate that the fortune of mankind will lead it to such a termination as is not possible for the present race of men to conceive. The point in view is not only the contemplative happiness, but the whole fortunes, and affairs, and powers, and works of men. For man being the minister and interpreter of nature, acts and understands so far as he has observed of the order, the works and mind of nature, and can proceed no further; for no power is able to loose or break the chain of causes, nor is nature to be conquered but by submission; whence those twin intentions, human knowledge and human power, are really coincident; and the greatest hindrance to works is the ignorance of causes.

The capital precept for the whole undertaking is this, that the eye of the mind be never taken off from things themselves, but receive their images truly as they are. And God forbid that ever we should offer the dreams of fancy for a model of the world; but rather in his kindness vouchsafe to us the means of writing a revelation and true vision of the traces and molds of the Creator in his creatures.

May thou, therefore, O Father, who gavest the light of vision as the first fruit of creation, and who hast spread over the fall of man the light of thy understanding as the accomplishment of thy works, guard and direct this work, which, issuing from thy goodness, seeks in return thy glory! When thou hadst surveyed the works which thy hands had wrought, all seemed good in thy sight, and thou restedst. But when man turned to the works of his hands, he found all vanity and vexation of spirit, and experienced no rest. If, however, we labor in thy works, thou wilt make us to partake of thy vision and sabbath; we, therefore, humbly beseech thee to strengthen our purpose, that thou mayest be willing to endow thy family of mankind with new gifts, through our hands, and the hands of those in whom thou shalt implant the same spirit.

FIRST PART OF
THE GREAT INSTAURATION

DIGNITY AND ADVANCEMENT OF LEARNING
IN NINE BOOKS

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ON THE DIGNITY AND ADVANCEMENT OF LEARNING

FIRST BOOK

The Different Objections to Learning stated and confuted; its Dignity and Merit maintained

TO THE KING

AS UNDER the old law, most excellent king, there were daily sacrifices and free oblations'—the one arising out of ritual observance, and the other from a pious generosity, so I deem that all faithful subjects owe their kings a double tribute of affection and duty. In the first I hope I shall never be found deficient, but as regards the latter, though doubtful of the worthiness of my choice, I thought it more befitting to tender to your Majesty that service which rather refers to the excellence of your individual person than to the business of the State.

In bearing your Majesty in mind, as is frequently my custom and duty, I have been often struck with admiration, apart from your other gifts of virtue and fortune, at the surprising development of that part of your nature which philosophers call intellectual. The deep and broad capacity of your mind, the grasp of your memory, the quickness of your apprehension, the penetration of your judgment, your lucid method of arrangement, and easy facility of speech—at such extraordinary endowments I am forcibly reminded of the saying of Plato, "that all science is but remembrance,"[2] and that the human mind

[1] See Numb. xxviii. 23; Levit. xxii. 18.

[2] Plato's Phædo, i. 72 (Steph.); Theæt. i. 166, 191; Menon, ii. 81; and Aristot. de Memor. 2.

is originally imbued with all knowledge; that which she seems adventitiously to acquire in life being nothing more than a return to her first conceptions, which had been overlaid by the grossness of the body. In no person so much as your Majesty does this opinion appear more fully confirmed, your soul being apt to kindle at the intrusion of the slightest object; and even at the spark of a thought foreign to the purpose to burst into flame. As the Scripture says of the wisest king, "That his heart was as the sands of the sea,"[3] which, though one of the largest bodies, contains the finest and smallest particles of matter. In like manner God has endowed your Majesty with a mind capable of grasping the largest subjects and comprehending the least, though such an instrument seems an impossibility in nature. As regards your readiness of speech, I am reminded of that saying of Tacitus concerning Augustus Cæsar, "Augusto profluens ut quæ principem virum deceret, eloquentia fuit."[4] For all eloquence which is affected or overlabored, or merely imitative, though otherwise excellent, carries with it an air of servility, nor is it free to follow its own impulses. But your Majesty's eloquence is indeed royal, streaming and branching out in nature's fashion as from a fountain, copious and elegant, original and inimitable. And as in those things which concern your crown and family, virtue seems to contend with fortune—your Majesty being possessed of a virtuous disposition and a prosperous government, a virtuous observance of the duties of the conjugal state with most blessed and happy fruit of marriage, a virtuous and most Christian desire of peace at a time when contemporary princes seem no less inclined to harmony—so likewise in intellectual gifts there appears as great a contention between your Majesty's natural talents and the universality and perfection of your learning. Nor indeed would it be easy to find any mon-

[3] III. Kings iv. 29. We may observe that Bacon invariably quotes from the Vulgate, to which our references point.

[4] Tacitus, Annales, xiii. 3.

arch since the Christian era who could bear any comparison with your Majesty in the variety and depth of your erudition. Let any one run over the whole line of kings, and he will agree with me. It indeed seems a great thing in a monarch, if he can find time to digest a compendium or imbibe the simple elements of science, or love and countenance learning; but that a king, and he a king born, should have drunk at the true fountain of knowledge, yea, rather, should have a fountain of learning in himself, is indeed little short of a miracle. And the more since in your Majesty's heart are united all the treasures of sacred and profane knowledge, so that like Hermes your Majesty is invested with a triple glory, being distinguished no less by the power of a king than by the illumination of a priest and the learning of a philosopher.[5] Since, then, your Majesty surpasses other monarchs by this property, which is peculiarly your own, it is but just that this dignified pre-eminence should not only be celebrated in the mouths of the present age, and be transmitted to posterity, but also that it should be engraved in some solid work which might serve to denote the power of so great a king and the height of his learning.

Therefore, to return to our undertaking: no oblation seemed more suitable than some treatise relating to that purpose, the sum of which should consist of two parts—the first of the excellence of learning, and the merit of those who labor judiciously and with energy for its propagation and development. The second, to point out what part of knowledge has been already labored and perfected, and what portions left unfinished or entirely neglected; in order, since I dare not positively advise your Majesty to adopt any particular course, that by a detailed representation of our wants, I may excite your Majesty to examine the treasures of your royal heart, and thence to extract, whatever to your magnanimity and wisdom may seem best fitted to enlarge the boundaries of knowledge.

[5] Poemander of Hermes Trismegistus.

On the threshold of the first part it is advisable to sift the merits of knowledge, and clear it of the disgrace brought upon it by ignorance, whether disguised (1) in the zeal of divines, (2) the arrogance of politicians, or (3) the errors of men of letters.

Some divines pretend, 1. "That knowledge is to be received with great limitation, as the aspiring to it was the original sin, and the cause of the fall; 2. That it has somewhat of the serpent, and puffeth up"; 3. That Solomon says, "Of making books there is no end: much study is weariness of the flesh; for in much wisdom is much grief; and he that increaseth knowledge, increaseth sorrow":[6] 4. "That St. Paul cautions being spoiled through vain philosophy":[7] 5. "That experience shows learned men have been heretics; and learned times inclined to atheism; and that the contemplation of second causes takes from our dependence upon God, who is the first."

To this we answer, 1. It was not the pure knowledge of nature, by the light whereof man gave names to all the creatures in Paradise, agreeable to their natures, that occasioned the fall; but the proud knowledge of good and evil, with an intent in man to give law to himself, and depend no more upon God. 2. Nor can any quantity of natural knowledge puff up the mind; for nothing fills, much less distends the soul, but God. Whence as Solomon declares, "That the eye is not satisfied with seeing, nor the ear with hearing";[8] so of knowledge itself he says, "God hath made all things beautiful in their seasons; also he hath placed the world in man's heart; yet cannot man find out the work which God worketh from the beginning to the end";[9] hereby declaring plainly that God has framed the mind like a glass, capable of the image of the universe, and desirous to receive it as the eye to receive the light; and thus it is not only pleased with the variety and vicissitudes of things, but also endeavors to find out the laws they observe in their changes

[6] Eccles. xii. 12, and i. 18.
[7] I. Cor. viii. 1.
[8] Eccles. i. 8.
[9] Eccles. iii. 11.

and alterations. And if such be the extent of the mind, there is no danger of filling it with any quantity of knowledge. But it is merely from its quality when taken without the true corrective that knowledge has somewhat of venom or malignity. The corrective which renders it sovereign is charity, for according to St. Paul, "Knowledge puffeth up, but charity buildeth." [10] 3. For the excess of writing and reading books, the anxiety of spirit proceeding from knowledge, and the admonition that we be not seduced by vain philosophy; when these passages are rightly understood, they mark out the boundaries of human knowledge, so as to comprehend the universal nature of things. These limitations are three: the first, that we should not place our felicity in knowledge, so as to forget mortality; the second, that we use knowledge so as to give ourselves ease and content, not distaste and repining; and the third, that we presume not by the contemplation of nature, to attain to the mysteries of God. As to the first, Solomon excellently says, "I saw that wisdom excelleth folly as far as light excelleth darkness. The wise man's eyes are in his head but the fool walketh in darkness; and I myself perceived also that one event happeneth to them all." [11] And for the second, it is certain that no vexation or anxiety of mind results from knowledge, but merely by accident; all knowledge, and admiration, which is the seed of knowledge, being pleasant in itself; but when we frame conclusions from our knowledge, apply them to our own particular, and thence minister to ourselves weak fears or vast desires; then comes on that anxiety and trouble of mind which is here meant—when knowledge is no longer the dry light of Heraclitus, but the drenched one, steeped in the humors of the affections.[12] 4. The third point deserves to be more dwelt upon; for if any man shall think, by his inquiries after material things, to discover the nature or will of God, he is indeed spoiled by vain philosophy; for the contemplation of God's

[10] I. Cor. viii. 1.
[11] Eccles. ii. 13, 14.
[12] Ap. Stob. Serm. v. 120, in Ritter's Hist. Phil. § 47.

works produces knowledge, though, with regard to him, not perfect knowledge, but wonder, which is broken knowledge. It may, therefore, be properly said, "That the sense resembles the sun, which shows the terrestrial globe, but conceals the celestial";[13] for thus the sense discovers natural things, while it shuts up divine. And hence some learned men have, indeed, been heretical, while they sought to seize the secrets of the Deity borne on the waxen wings of the senses. 5. As to the point that too much knowledge should incline to atheism, and the ignorance of second causes make us more dependent upon God, we ask Job's question, "Will ye lie for God, as one man will do for another, to gratify him?"[14] For certainly God works nothing in nature but by second causes;[15] and to assert the contrary is mere imposture, as it were, in favor of God, and offering up to the author of truth the unclean sacrifice of a lie. Undoubtedly a superficial tincture of philosophy may incline the mind to atheism, yet a further knowledge brings it back to religion;[16] for on the threshold of philosophy, where second causes appear to absorb the attention, some oblivion of the highest cause may ensue; but when the mind goes deeper, and sees the dependence of causes and the works of Providence, it will easily perceive, according to the mythology of the poets, that the upper link of Nature's chain is fastened to Jupiter's throne.[17] To conclude, let no one weakly imagine that man can search too far, or be too well studied in the book of God's word, and works, divinity, and philosophy; but rather let them endeavor an endless progression in both, only applying all to charity, and not to pride—to use, not ostentation, without confounding the two different streams of philosophy and revelation together.[18]

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[13] Phil. Jud. de Somnis, p. 41.

[14] Job. xiii. 7.

[15] Hooker, Eccl. Pol. i. 2; Butler, Anal. part i. c. 2.

[16] See the author's essay on Atheism, and Mr. Boyle's essays upon the Usefulness of Philosophy.

[17] Iliad. viii. 19; and conf. Plato, Theæt. i. 153.

[18] The dispute between the rational and scriptural divines is still on foot; the former are for reconciling reason and philosophy with faith and religion; and the latter for keeping them distinct, as things incompatible, or making reason

The reflections cast upon learning by politicians, are these. 1. "That it enervates men's minds, and unfits them for arms; 2. That it perverts their dispositions for government and politics; 3. That it makes them too curious and irresolute, by variety of reading; too peremptory or positive by strictness of rules; too immoderate and conceited by the greatness of instances; too unsociable and incapacitated for the times, by the dissimilitude of examples; or at least, 4. That it diverts from action and business, and leads to a love of retirement; 5. That it introduces a relaxation in government, as every man is more ready to argue than obey; whence Cato the censor—when Carneades came ambassador to Rome, and the young Romans, allured with his eloquence, flocked about him—gave counsel in open senate, to grant him his despatch immediately, lest he should infect the minds of the youth, and insensibly occasion an alteration in the State." [19]

The same conceit is manifest in Virgil, who, preferring the honor of his country to that of his profession, challenged the arts of policy in the Romans, as something superior to letters, the pre-eminence in which, he freely assigns to the Grecians.

> "Tu regere imperio populos, Romane memento:
> Hæ tibi erunt artes."—Æn. vi. 851.

And we also observe that Anytus, the accuser of Socrates, charged him in his impeachment with destroying, in the minds of young men, by his rhetorical arts, all authority and reverence for the laws of the country.[20]

1. But these and the like imputations have rather a show of gravity, than any just ground; for experience shows that learning and arms have flourished in the same persons and ages. As to persons, there are no better instances than Alexander and Cæsar, the one Aristotle's scholar in phi-

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and knowledge subject to faith and religion. The author is clear, that they should be kept separate, as will more fully appear hereafter, when he comes to treat of theology.—*Shaw.*

[19] Plutarch in M. Cato.

[20] Plato, Apol. Soc.

losophy, and the other Cicero's rival in eloquence; and again, Epaminondas and Xenophon, the one whereof first abated the power of Sparta, and the other first paved the way for subverting the Persian monarchy. This concurrence of learning and arms, is yet more visible in times than in persons, as an age exceeds a man. For in Egypt, Assyria, Persia, Greece, and Rome, the times most famous for arms are likewise most admired for learning; so that the greatest authors and philosophers, the greatest leaders and governors, have lived in the same ages. Nor can it well be otherwise; for as the fulness of human strength, both in body and mind, comes nearly at an age; so arms and learning, one whereof corresponds to the body, the other to the soul, have a near concurrence in point of time.

2. And that learning should rather prove detrimental than serviceable in the art of government, seems very improbable. It is wrong to trust the natural body to empirics, who commonly have a few receipts whereon they rely, but who know neither the causes of diseases, nor the constitutions of patients, nor the danger of accidents, nor the true methods of cure. And so it must needs be dangerous to have the civil body of States managed by empirical statesmen, unless well mixed with others who are grounded in learning. On the contrary, it is almost without instance, that any government was unprosperous under learned governors. For however common it has been with politicians to discredit learned men, by the name of pedants, yet it appears from history, that the governments of princes in minority have excelled the governments of princes in maturity, merely because the management was in learned hands. The State of Rome for the first five years, so much magnified, during the minority of Nero, was in the hands of Seneca, a pedant: so it was for ten years, during the minority of Gordianus the younger, with great applause in the hands of Misitheus, a pedant; and it was as happy before that, in the minority of Alexander Severus, under the rule of women, assisted by preceptors. And to look

into the government of the bishops of Rome, particularly that of Pius and Sextus Quintus, who were both at their entrance esteemed but pedantical friars, we shall find that such popes did greater things, and proceeded upon truer principles of state, than those who rose to the papacy from an education in civil affairs, and the courts of princes. For though men bred to learning are perhaps at a loss in points of convenience, and present accommodations, called[21] reasons of state, yet they are perfect in the plain grounds of religion, justice, honor, and moral virtue, which, if well pursued, there will be as little use of reasons of state, as of physic in a healthy constitution. Nor can the experience of one man's life furnish examples and precedents for another's: present occurrences frequently correspond to ancient examples, better than to later. And lastly, the genius of any single man can no more equal learning, than a private purse hold way with the exchequer.

3. As to the particular indispositions of the mind for politics and government, laid to the charge of learning, if they are allowed of any force, it must be remembered, that learning affords more remedies than it breeds diseases; for if, by a secret operation, it renders men perplexed and irresolute, on the other hand, by plain precept, it teaches when, and upon what grounds, to resolve, and how to carry things in suspense, without prejudice: if it makes men positive and stiff, it shows what things are in their nature demonstrative, what conjectural; and teaches the use of distinctions and exceptions, as well as the rigidness of principles and rules. If it misleads, by the unsuitableness of examples, it shows the force of circumstances, the errors of comparisons, and the cautions of application; so that in all cases, it rectifies more effectually than it perverts: and these remedies it conveys into the mind much more effectually by the force and variety of examples. Let a man look into the errors of Clement the Seventh, so livelily de-

[21] By the Italians "Ragioni di stato."

scribed by Guicciardini; or into those of Cicero, described by himself in his epistles to Atticus, and he will fly from being irresolute: let him look into the errors of Phocion, and he will beware of obstinacy or inflexibility: let him read the fable of Ixion,[22] and it will keep him from conceitedness: let him look into the errors of the second Cato, and he will never tread opposite to the world.[23]

4. For the pretence that learning disposes to retirement, privacy, and sloth; it were strange if what accustoms the mind to perpetual motion and agitation should induce indolence; whereas no kind of men love business, for its own sake, but the learned; while others love it for profit, as hirelings for the wages; others for honor; others because it bears them up in the eyes of men, and refreshes their reputations, which would otherwise fade; or because it reminds them of their fortune, and gives them opportunities of revenging and obliging; or because it exercises some faculty, wherein they delight, and so keeps them in good humor with themselves. Whence, as false valor lies in the eyes of the beholders, such men's industry lies in the eyes of others, or is exercised with a view to their own designs; while the learned love business, as an action according to nature, and agreeable to the health of the mind, as exercise is to that of the body: so that, of all men, they are the most indefatigable in such business as may deservedly fill and employ the mind. And if there are any laborious in study, yet idle in business, this proceeds either from a weakness of body, or a softness of disposition, and not from learning itself, as Seneca remarks, "Quidam tam sunt umbratiles ut putent in turbido esse, quicquid in luce est."[24] The consciousness of such a disposition may indeed incline a man to learning, but learning does not breed any such temper in him.

If it be objected, that learning takes up much time, which might be better employed, I answer that the most

[22] Pind. Pyth. ii. 21.
[23] Cic. ad Att. i. 1.
[24] Seneca's Epistles, iii. near the end.

active or busy men have many vacant hours, while they expect the tides and returns of business; and then the question is, how those spaces of leisure shall be filled up, whether with pleasure or study? Demosthenes being taunted by Æschines, a man of pleasure, that his speeches smelt of the lamp, very pertly retorted, "There is great difference between the objects which you and I pursue by lamplight."[25] No fear, therefore, that learning should displace business, for it rather keeps and defends the mind against idleness and pleasure, which might otherwise enter to the prejudice both of business and learning. 5. For the allegation that learning should undermine the reverence due to laws and government, it is a mere calumny, without shadow of truth; for to say that blind custom of obedience should be a safer obligation than duty, taught and understood, is to say that a blind man may tread surer by a guide than a man with his eyes open can by a light. And, doubtless, learning makes the mind gentle and pliable to government, whereas ignorance renders it churlish and mutinous; and it is always found that the most barbarous, rude, and ignorant times have been most tumultuous, changeable, and seditious.

6. As to the judgment of Cato the Censor, he was punished for his contempt of learning, in the kind wherein he offended, for when past threescore the humor took him to learn Greek, which shows that his former censure of the Grecian learning was rather an affected gravity than his inward sense.[26] And, indeed, the Romans never arrived at their height of empire till they had arrived at their height of arts; for in the time of the first two Cæsars, when their government was in its greatest perfection, there lived the best poet, Virgil; the best historiographer, Livy; the best antiquary, Varro; and the best, or second best orator, Cicero, that the world has known. And as to the persecution of Socrates, the time must be remembered in which it

[25] Plutarch's "Life of Demosthenes," not said of Æschines, but Pytheas.
[26] Plutarch's M. Cato.

occurred, viz., under the reign of the Thirty Tyrants, of all mortals the bloodiest and basest that ever reigned, since the government had no sooner returned to its senses than that judgment was reversed. Socrates, from being a criminal, started at once into a hero, his memory loaded with honors human and divine, and his discourses, which had been previously stigmatized as immoral and profane, were considered as the reformers of thought and manners.[27] And let this suffice as an answer to those politicians who have presumed, whether sportively or in earnest, to disparage learning.

We come now to that sort of discredit which is brought upon learning by learned men themselves; and this proceeds either (1) from their fortune, (2) their manners, or (3) the nature of their studies.

1. The disrepute of learning from the fortune or condition of the learned, regards either their indigence, retirement, or meanness of employ. As to the point, that learned men grow not so soon rich as others, because they convert not their labors to profit, we might turn it over to the friars, of whom Machiavel said, "That the kingdom of the clergy had been long since at an end, if the reputation and reverence toward the poverty of the monks and mendicants had not borne out the excesses of bishops and prelates."[28] For so the splendor and magnificence of the great had long since sunk into rudeness and barbarism, if the poverty of learned men had not kept up civility and reputation. But to drop such advantages, it is worth observing how reverend and sacred poverty was esteemed for some ages in the Roman State, since, as Livy says, "There never was a republic greater, more venerable, and more abounding in good examples than the Roman, nor one that so long withstood avarice and luxury, or so much honored poverty and parsimony."[29] And we see, when Rome degenerated, how Julius Cæsar after his victory was counselled to begin the

[27] Plato, Apol. Socr. [28] Mach. Hist. de Firenza, b. 10.
[29] Livy's preface, toward the end.

restoration of the State, by abolishing the reputation of wealth. And, indeed, as we truly say that blushing is the livery of virtue, though it may sometimes proceed from guilt,[30] so it holds true of poverty that it is the attendant of virtue, though sometimes it may proceed from mismanagement and accident.

As for retirement, it is a theme so common to extol a private life, not taxed with sensuality and sloth, for the liberty, the pleasure, and the freedom from indignity it affords, that every one praises it well, such an agreement it has to the nature and apprehensions of mankind. This may be added, that learned men, forgotten in States and not living in the eyes of the world, are like the images of Cassius and Brutus at the funeral of Junia, which not being represented as many others were, Tacitus said of them that "they outshone the rest, because not seen."[31]

As for their meanness of employ, that most exposed to contempt is the education of youth, to which they are commonly allotted. But how unjust this reflection is to all who measure things, not by popular opinion, but by reason, will appear in the fact that men are more careful what they put into new vessels than into those already seasoned. It is manifest that things in their weakest state usually demand our best attention and assistance. Hearken to the Hebrew rabbis: "Your young men shall see visions, your old men shall dream dreams";[32] upon which the commentators observe, that youth is the worthier age, inasmuch as revelation by vision is clearer than by dreams. And to say the truth, how much soever the lives of pedants have been ridiculed upon the stage, as the emblem of tyranny, because the modern looseness or negligence has not duly regarded the choice of proper schoolmasters and tutors; yet the wisdom of the ancientest and best times always complained that States were too busy with laws and too remiss

[30] Diog. Cyn. ap. Laert. vi. 54; compare Tacitus, Agric. 45, of Domitian, "Sævus vultus et rubor, a quo se contra pudorem muniebat."

[31] Annals, iii. 76.

[32] Joel ii. 28.

in point of education. This excellent part of ancient discipline, has in some measure been revived of late by the colleges of Jesuits abroad; in regard of whose diligence in fashioning the morals and cultivating the minds of youth, I may say, as Agesilaus said to his enemy Pharnabasus, "Talis quum sis, utinam noster esses."[33]

2. The manners of learned men belong rather to their individual persons than to their studies or pursuits. No doubt, as in all other professions and conditions of life, bad and good are to be found among them; yet it must be admitted that learning and studies, unless they fall in with very depraved dispositions, have, in conformity with the adage, "Abire studia in mores," a moral influence upon men's lives. For my part I cannot find that any disgrace to learning can proceed from the habits of learned men, inherent in them as learned, unless peradventure that may be a fault which was attributed to Demosthenes, Cicero, the second Cato, and many others, that seeing the times they read of more pure than their own, pushed their servility too far in the reformation of manners, and to seek to impose, by austere precepts, the laws of ancient asceticism upon dissolute times. Yet even antiquity should have forewarned them of this excess; for Solon, upon being asked if he had given his citizens the best laws, replied, "The best they were capable of receiving."[34] And Plato, finding that he had fallen upon corrupt times, refused to take part in the administration of the commonwealth, saying that a man should treat his country with the same forbearance as his parents, and recall her from a wrong course, not by violence or contest, but by entreaty and persuasion.[35] Cæsar's counsellor administers the same caveat in the words, "Non ad vetera instituta revocamus quæ jampridem corruptis moribus ludibrio sunt."[36] Cicero points out the same error in the second Cato, when writing to his friend Atticus:

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[33] Plut. "Life of Agesil." [34] Plutarch, Solon.
[35] Epist. Z. iii. 331; and cf. Ep. T. iii. 316.
[36] Sallust, Cat. Conspiracy.

"Cato optime sentit sed nocet interdum Reipublicæ; loquitur enim tanquam in Republica Platonis, non tanquam in fæce Romuli."[37] The same orator likewise excuses and blames the philosophers for being too exact in their precepts. These preceptors, said he, have stretched the lines and limits of duties beyond their natural boundaries, thinking that we might safely reform when we had reached the highest point of perfection.[38] And yet himself stumbled over the same stone, so that he might have said, "Monitis sum minor ipse meis."[39]

3. Another fault laid to the charge of learned men, and arising from the nature of their studies, is, "That they esteem the preservation, good, and honor of their country before their own fortunes or safeties." Demosthenes said well to the Athenians, "My counsels are not such as tend to aggrandize myself and diminish you, but sometimes not expedient for me to give, though always expedient for you to follow."[40] So Seneca, after consecrating the five years of Nero's minority to the immortal glory of learned governors, held on his honest course of good counsel after his master grew extremely corrupt. Nor can this be otherwise; for learning gives men a true sense of their frailty, the casualty of fortune, and the dignity of the soul and its office; whence they cannot think any greatness of fortune a worthy end of their living, and therefore live so as to give a clear and acceptable account to God and their superiors; while the corrupter sort of politicians, who are not by learning established in a love of duty, nor ever look abroad into universality, refer all things to themselves, and thrust their persons into the centre of the world, as if all lines should meet in them and their fortunes, without regarding in storms what becomes of the ship of the State, if they can save themselves in the cock-boat of their own fortune.

Another charge brought against learned men, which

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[37] Cicero to Atticus, epis. ii. 1.
[38] Oratio pro L. Muræna, xxxi. 65.
[39] "I am unequal to my teaching."—Ovid, Ars Amandi, ii. 548.
[40] Oration on the Crown.

may rather be defended than denied, is, "That they sometimes fail in making court to particular persons." This want of application arises from two causes—the one the largeness of their mind, which can hardly submit to dwell in the examination and observance of any one person. It is the speech of a lover rather than of a wise man, "Satis magnum alter alteri theatrum sumus."[41] Nevertheless he who cannot contract the sight of his mind, as well as dilate it, wants a great talent in life. The second cause is, no inability, but a rejection upon choice and judgment; for the honest and just limits of observation in one person upon another extend no further than to understand him sufficiently, so as to give him no offence, or be able to counsel him, or to stand upon reasonable guard and caution with respect to one's self; but to pry deep into another man, to learn to work, wind, or govern him, proceeds from a double heart, which in friendship is want of integrity, and toward princes or superiors want of duty. The eastern custom which forbids subjects to gaze upon princes, though in the outward ceremony barbarous, has a good moral; for men ought not, by cunning and studied observations, to penetrate and search into the hearts of kings, which the Scripture declares inscrutable.[42]

Another fault noted in learned men is, "That they often fail in point of discretion and decency of behavior, and commit errors in ordinary actions, whence vulgar capacities judge of them in greater matters by what they find them in small." But this consequence often deceives; for we may here justly apply the saying of Themistocles, who being asked to touch a lute, replied, "He could not fiddle, but he could make a little village a great city."[43] Accordingly many may be well skilled in government and policy, who are defective in little punctilios. So Plato compared his master Socrates to the shop-pots of apothecaries painted

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[41] Seneca, Ep. Mor. i. 7. [42] Prov. xxv.
[43] Cicero, Tuscul. Quæst. i. 2; Plutarch, Themistocles.

on the outside with apes and owls and antiques, but contained within sovereign and precious remedies.[44]

But we have nothing to offer in excuse of those unworthy practices, whereby some professors have debased both themselves and learning, as the trencher philosophers, who, in the decline of the Roman State, were but a kind of solemn parasites. Lucian makes merry with this kind of gentry, in the person of a philosopher riding in a coach with a great lady, who would needs have him carry her lapdog, which he doing with an awkward officiousness, the page said, "He feared the Stoic would turn Cynic."[45] But above all, the gross flattery wherein many abuse their wit, by turning Hecuba into Hellena, and Faustina into Lucretia, has most diminished the value and esteem of learning.[46] Neither is the modern practice of dedications commendable; for books should have no patrons but truth and reason. And the ancient custom was, to dedicate them only to private and equal friends, or if to kings and great persons, it was to such as the subject suited. These and the like measures, therefore, deserve rather to be censured than defended. Yet the submission of learned men to those in power cannot be condemned. Diogenes, to one who asked him "How it happened that philosophers followed the rich, and not the rich the philosophers?" answered, "Because the philosophers know what they want, but the rich do not."[47] And of the like nature was the answer of Aristippus, who having a petition to Dionysius, and no ear being given him, fell down at his feet, whereupon Dionysius gave him the hearing, and granted the suit; but when afterward Aristippus was reproved for offering such an indignity to philosophy as to fall at a tyrant's feet,

[44] Conv. iii. 215; and cf. Xen. Symp. v. 7.

[45] Lucian de Merc. Cond. 33, 34. The raillery couched under the word cynic will become more evident if the reader will recollect the word is derived from κυνος, the Greek name for dog. Those philosophers were called Cynics who, like Diogenes, rather barked than declaimed against the vices and the manners of their age.—*Ed.*

[46] Du Bartas Bethulian's Rescue, b. v. translated by Sylvester.

[47] Laert. Life Diog.

he replied, "It was not his fault if Dionysius' ears were in his feet," [48] Nor was it accounted weakness, but discretion, in him[49] that would not dispute his best with the Emperor Adrian, excusing himself, "That it was reasonable to yield to one that commanded thirty legions." [50] These and the like condescensions to points of necessity and convenience, cannot be disallowed; for though they may have some show of external meanness, yet in a judgment truly made, they are submissions to the occasion, and not to the person.

We proceed to the errors and vanities intermixed with the studies of learned men, wherein the design is not to countenance such errors, but, by a censure and separation thereof to justify what is sound and good; for it is the manner of men, especially the evil-minded, to depreciate what is excellent and virtuous, by taking advantage over what is corrupt and degenerate. We reckon three principal vanities for which learning has been traduced. Those things are vain which are either false or frivolous, or deficient in truth or use; and those persons are vain who are either credulous of falsities or curious in things of little use. But curiosity consists either in matter or words, that is, either in taking pains about vain things, or too much labor about the delicacy of language. There are, therefore, in reason as well as experience, three distempers of learning; viz., vain affectations, vain disputes, and vain imaginations, or effeminate learning, contentious learning, and fantastical learning.

The first disease, which consists in a luxuriance of style, has been anciently esteemed at different times, but strangely prevailed about the time of Luther, who, finding how great a task he had undertaken against the degenerate traditions of the Church, and being unassisted by the opinions of his own age, was forced to awake antiquity to make a party for him; whence the ancient authors both in divinity and

[48] Laert. Life Arist. [49] Demonax.
[50] Spartianus, Vit. Adriani, § 15.

the humanities, that had long slept in libraries, began to be generally read. This brought on a necessity of greater application to the original languages wherein those authors wrote, for the better understanding and application of their works. Hence also proceeded a delight in their manner of style and phrase, and an admiration of this kind of writing, which was much increased by the enmity now grown up against the schoolmen, who were generally of the contrary party, and whose writings were in a very different style and form, as taking the liberty to coin new and strange words, to avoid circumlocution and express their sentiments acutely, without regard to purity of diction and justness of phrase. And again, because the great labor then was to win and persuade the people, eloquence and variety of discourse grew into request as most suitable for the pulpit, and best adapted to the capacity of the vulgar; so that these four causes concurring, viz., 1, admiration of the ancients; 2, enmity to the schoolmen; 3, an exact study of languages; and 4, a desire of powerful preaching—introduced an affected study of eloquence and copiousness of speech, which then began to flourish. This soon grew to excess, insomuch that men studied more after words than matter, more after the choiceness of phrase, and the round and neat composition, sweet cadence of periods, the use of tropes and figures, than after weight of matter, dignity of subject, soundness of argument, life of invention, or depth of judgment. Then grew into esteem the flowing and watery vein of Orosius,[51] the Portugal bishop; then did Sturmius bestow such infinite pains upon Cicero and Hermogenes; then did Car and Ascham, in their lectures and writings, almost deify Cicero and Demosthenes; then grew the learning of the schoolmen to be utterly despised as barbarous; and the whole bent of those times was rather upon fulness than weight.

[51] Neither a Portuguese nor a bishop, but a Spanish monk, born at Tarragona, and sent by St. Augustine on a mission to Jerusalem in the commencement of the fifth century.

Here, therefore, is the first distemper of learning, when men study words and not matter; and though we have given an example of it from later times, yet such levities have and will be found more or less in all ages. And this must needs discredit learning, even with vulgar capacities, when they see learned men's works appear like the first letter of a patent, which, though finely flourished, is still but a letter. Pygmalion's frenzy seems a good emblem of this vanity;[52] for words are but the images of matter, and unless they have life of reason and invention, to fall in love with them is to fall in love with a picture.

Yet the illustrating the obscurities of philosophy with sensible and plausible elocution is not hastily to be condemned; for hereof we have eminent examples in Xenophon, Cicero, Seneca, Plutarch, and Plato;[53] and the thing itself is of great use; for although it be some hindrance to the severe inquiry after truth, and the further progress in philosophy, that it should too early prove satisfactory to the mind, and quench the desire of further search, before a just period is made; yet when we have occasion for learning and knowledge in civil life, as for conference, counsel, persuasion, discourse, or the like, we find it ready prepared to our hands in the authors who have wrote in this way. But the excess herein is so justly contemptible, that as Hercules, when he saw the statue of Adonis, who was the delight of Venus, in the temple, said with indignation, "There is no divinity in thee"; so all the followers of Hercules in learning, that is, the more severe and laborious inquirers after truth, will despise these delicacies and affectations as trivial and effeminate.

The luxuriant style was succeeded by another, which, though more chaste, has still its vanity, as turning wholly upon pointed expressions and short periods, so as to appear

[52] Ovid, Metam. x. 243.

[53] M. Fontenelle is an eminent modern instance in the same way, who, particularly in his "Plurality of Worlds," renders the present system of astronomy agreeably familiar, as his "History of the Royal Academy" embellishes and explains the abstruse parts of mathematics and natural philosophy.—*Shaw.*

concise and round rather than diffusive; by which contrivance the whole looks more ingenious than it is. Seneca used this kind of style profusely, but Tacitus and Pliny with greater moderation. It has also begun to render itself acceptable in our time. But to say the truth, its admirers are only the men of a middle genius, who think it adds a dignity to learning; while those of solid judgment justly reject it as a certain disease of learning, since it is no more than a jingle, or peculiar quaint affectation of words.[54] And so much for the first disease of learning.

The second disease is worse in its nature than the former; for as the dignity of matter exceeds the beauty of words, so vanity in matter is worse than vanity in words; whence the precept of St. Paul is at all times seasonable: "Avoid profane and vain babblings, and oppositions of science falsely so called."[55] He assigns two marks of suspected and falsified science: the one, novelty and strangeness of terms; the other, strictness of positions; which necessarily induces oppositions, and thence questions and altercations. And indeed, as many solid substances putrefy, and turn into worms, so does sound knowledge often putrefy into a number of subtle, idle, and vermicular questions, that have a certain quickness of life, and spirit, but no strength of matter, or excellence of quality. This kind of degenerate learning chiefly reigned among the schoolmen; who, having subtle and strong capacities, abundance of leisure, and but small variety of reading, their minds being shut up in a few authors, as their bodies were in the cells of their monasteries, and thus kept ignorant both of the history of nature and times; they, with infinite agitation of wit, spun out of a small quantity of matter, those laborious webs of learning which are extant in their books. For the human mind, if it acts upon matter, and contemplates the nature of things, and the works of God, operates according

[54] Since the establishment of the French Academy, a studied plainness and simplicity of style begins to prevail in that nation.

[55] I. Tim. vi. 20.

to the stuff, and is limited thereby; but if it works upon itself, as the spider does, then it has no end; but produces cobwebs of learning, admirable indeed for the fineness of the thread, but of no substance or profit.[56]

This unprofitable subtilty is of two kinds, and appears either in the subject, when that is fruitless speculation or controversy, or in the manner of treating it, which among them was this: Upon every particular position they framed objections, and to those objections solutions; which solutions were generally not confutations, but distinctions; whereas the strength of all sciences is like the strength of a fagot bound. For the harmony of science, when each part supports the other, is the true and short confutation of all the smaller objections; on the contrary, to take out every axiom, as the sticks of the fagot, one by one, you may quarrel with them, and bend them, and break them at pleasure: whence, as it was said of Seneca, that he "weakened the weight of things by trivial expression,"[57] we may truly say of the schoolmen, "That they broke the solidity of the sciences by the minuteness of their questions." For, were it not better to set up one large light in a noble room, than to go about with a small one, to illuminate every corner thereof? Yet such is the method of schoolmen, that rests not so much upon the evidence of truth from arguments, authorities, and examples, as upon particular confutations and solutions of every scruple and objection; which breeds one question, as fast as it solves another; just as in the above example, when the light is carried into one corner, it darkens the rest. Whence the fable of Scylla seems a lively image of this kind of philosophy, who was transformed into a beautiful virgin upward, while barking monsters surrounded her below—

"Candida succinctam latrantibus inguina monstris."—Virg. Ecl. vi. 75

So the generalities of the schoolmen are for a while fair and

[56] For the literary history of the schoolmen, see Morhof's "Polyhist." tom. ii. lib. i. cap. 14; and Camden's "Remains."

[57] Quintilian, lib. x. cap. 1, § 130.

proportionable; but to descend into their distinctions and decisions, they end in monstrous altercations and barking questions. Whence this kind of knowledge must necessarily fall under popular contempt; for the people are ever apt to contemn truth, upon account of the controversies raised about it; and so think those all in the wrong way, who never meet. And when they see such quarrels about subtilties and matters of no use, they usually give in to the judgment of Dionysius, "That it is old men's idle talk." [58] But if those schoolmen, to their great thirst of truth, and unwearied exercise of wit, had joined variety of reading and contemplation, they would have proved excellent lights to the great advancement of all kinds of arts and sciences. And thus much for the second disease of learning.

The third disease, which regards deceit or falsehood, is the foulest; as destroying the essential form of knowledge, which is nothing but a representation of truth; for the truth of existence and the truth of knowledge are the same thing, or differ no more than the direct and reflected ray. This vice, therefore, branches into two; viz., delight in deceiving and aptness to be deceived; imposture and credulity, which, though apparently different, the one seeming to proceed from cunning, and the other from simplicity, yet they generally concur. For, as in the verse,

> "Percontatorem fugito; nam garrulus idem est,"
> —Hor. lib. i. epis. xviii. v. 69.

an inquisitive man is a prattler; so a credulous man is a deceiver; for he who so easily believes rumors will as easily increase them. Tacitus has wisely expressed this law of our nature in these words, "Fingunt simul creduntque." [59] This easiness of belief, and admitting things upon weak authority, is of two kinds, according to the subject; being either a belief of history and matter of fact, or

[58] Diog. Laert. iii. 18, Life of Plato.

[59] Tacit. Hist. b. i. 51.

else matter of art and opinion. We see the inconvenience of the former in ecclesiastical history, which has too easily received and registered relations of miracles wrought by martyrs, hermits, monks, and their relics, shrines, chapels, and images. So in natural history, there has not been much judgment employed, as appears from the writings of Pliny, Carban, Albertus, and many of the Arabians; which are full of fabulous matters; many of them not only untried, but notoriously false, to the great discredit of natural philosophy with grave and sober minds. But the produce and integrity of Aristotle is here worthy our observation, who, having compiled an exact history of animals, dashed it very sparingly with fable or fiction, throwing all strange reports which he thought worth recording in a book by themselves,[60] thus wisely intimating, that matter of truth which is the basis of solid experience, philosophy, and the sciences, should not be mixed with matter of doubtful credit; and yet that curiosities or prodigies, though seemingly incredible, are not to be suppressed or denied the registering.

Credulity in arts and opinions, is likewise of two kinds; viz., when men give too much belief to arts themselves, or to certain authors in any art. The sciences that sway the imagination more than the reason, are principally three; viz., astrology, natural magic, and alchemy; the ends or pretensions whereof are however noble. For astrology pretends to discover the influence of the superior upon the inferior bodies; natural magic pretends to reduce natural philosophy from speculation to works; and chemistry pretends to separate the dissimilar parts, incorporated in natural mixtures, and to cleanse such bodies as are impure, throw out the heterogeneous parts, and perfect such as are immature. But the means supposed to produce these effects are, both in theory and practice, full of error and vanity, and besides, are seldom delivered with candor, but generally concealed by artifice and enigmatical expressions, referring to tradition,

[60] Θαυμασια Ακουσματα.

and using other devices to cloak imposture. Yet alchemy may be compared to the man who told his sons, he had left them gold buried somewhere in his vineyard; where they, by digging, found no gold, but by turning up the mould about the roots of the vines, procured a plentiful vintage. So the search and endeavors to make gold have brought many useful inventions and instructive experiments to light.[61]

Credulity in respect of certain authors, and making them dictators instead of consuls, is a principal cause that the sciences are no further advanced. For hence, though in mechanical arts, the first inventor falls short, time adds perfection; while in the sciences, the first author goes furthest, and time only abates or corrupts. Thus artillery, sailing, and printing, were grossly managed at the first, but received improvement by time; while the philosophy and the sciences of Aristotle, Plato, Democritus, Hippocrates, Euclid, and Archimedes, flourished most in the original authors, and degenerated with time. The reason is, that in the mechanic arts, the capacities and industry of many are collected together; whereas in sciences, the capacities and industry of many have been spent upon the invention of some one man, who has commonly been thereby rather obscured than illustrated. For as water ascends no higher than the level of the first spring, so knowledge derived from Aristotle will at most rise no higher again than the knowledge of Aristotle. And therefore, though a scholar must have faith in his master, yet a man well instructed must judge for himself; for learners owe to their

[61] As among the Egyptians, the Chinese, and the Arabians, if their histories are to be credited. In later times, they make copper out of iron, at Newsohl, in Germany. See Agricola "De Re Metallica," Morhof, Fr. Hoffman, etc. While Brand of Hamburg was working upon urine, in order to find the philosopher's stone, he stumbled upon that called Kunckel's burning phosphorus, in the year 1669. See Mém. de l'Acad. Royal. des Sciences, an 1692. And M. Homberg operating upon human excrement, for an oil to convert quicksilver into silver, accidentally produced what we now call the black phosphorus, a powder which readily takes fire and burns like a coal in the open air. See Mem. de l'Acad. an 1711. To give all the instances of this kind were almost endless.—*Ed.*

masters only a temporary belief, and a suspension of their own judgment till they are fully instructed, and not an absolute resignation or perpetual captivity. Let great authors, therefore, have their due, but so as not to defraud time, which is the author of authors, and the parent of truth.

Besides the three diseases of learning above treated, there are some other peccant humors, which, falling under popular observation and reprehension, require to be particularly mentioned. The first is the affecting of two extremes; antiquity and novelty: wherein the children of time seem to imitate their father; for as he devours his children, so they endeavor to devour each other; while antiquity envies new improvements, and novelty is not content to add without defacing. The advice of the prophet is just in this case: "Stand upon the old ways, and see which is the good way, and walk therein."[62] For antiquity deserves that men should stand awhile upon it, to view around which is the best way; but when the discovery is made, they should stand no longer, but proceed with cheerfulness. And to speak the truth antiquity, as we call it, is the young state of the world; for those times are ancient when the world is ancient; and not those we vulgarly account ancient by computing backward; so that the present time is the real antiquity.

Another error, proceeding from the former, is, a distrust that anything should be discovered in later times that was not hit upon before; as if Lucian's objection against the gods lay also against time. He pleasantly asks why the gods begot so many children in the first ages, but none in his days; and whether they were grown too old for generation, or were restrained by the Papian law, which prohibited old men from marrying?[63] For thus we seem apprehensive that time is worn out, and become unfit for generation. And here we have a remarkable instance of the levity and inconstancy of man's humor; which,

[62] Jeremiah vi. 16. [63] Senec. imput. ap. Lact. Instit. i. 26, 13.

before a thing is effected, thinks it impossible, and as soon as it is done, wonders it was not done before. So the expedition of Alexander into Asia was at first imagined a vast and impracticable enterprise, yet Livy afterward makes so light of it as to say, "It was but bravely venturing to despise vain opinions."[64] And the case was the same in Columbus's discovery of the West Indies. But this happens much more frequently in intellectual matters, as we see in most of the propositions of Euclid, which, till demonstrated, seem strange, but when demonstrated, the mind receives them by a kind of affinity, as if we had known them before.

Another error of the same nature is an imagination that of all ancient opinions or sects, the best has ever prevailed, and suppressed the rest; so that if a man begins a new search, he must happen upon somewhat formerly rejected; and by rejection, brought into oblivion; as if the multitude, or the wiser sort to please the multitude, would not often give way to what is light and popular, rather than maintain what is substantial and deep.

Another different error is, the over-early and peremptory reduction of knowledge into arts and methods, from which time the sciences are seldom improved; for as young men rarely grow in stature after their shape and limbs are fully formed, so knowledge, while it lies in aphorisms and observations, remains in a growing state; but when once fashioned into methods, though it may be further polished, illustrated, and fitted for use, it no longer increases in bulk and substance.

Another error is, that after the distribution of particular arts and sciences, men generally abandon the study of nature, or universal philosophy, which stops all further progress. For as no perfect view of a country can be taken upon a flat, so it is impossible to discover the remote and deep parts of any science by standing upon the level of the same science, or without ascending to a higher.

[64] "Nihil aliud quam bene ausus est, vana contemnere."—Livy, b. 10, c. 17.

Another error proceeds from too great a reverence, and a kind of adoration paid to the human understanding; whence men have withdrawn themselves from the contemplation of nature and experience, and sported with their own reason and the fictions of fancy. These intellectualists, though commonly taken for the most sublime and divine philosophers, are censured by Heraclitus, when he says, "Men seek for truth in their own little worlds, and not in the great world without them":[65] and as they disdain to spell, they can never come to read in the volume of God's works; but on the contrary, by continual thought and agitation of wit, they compel their own genius to divine and deliver oracles, whereby they are deservedly deluded.

Another error is, that men often infect their speculations and doctrines with some particular opinions they happen to be fond of, or the particular sciences whereto they have most applied, and thence give all other things a tincture that is utterly foreign to them. Thus Plato mixed philosophy with theology;[66] Aristotle with logic; Proclus with mathematics; as these arts were a kind of elder and favorite children with them. So the alchemists have made a philosophy from a few experiments of the furnace, and Gilbert another out of the loadstone: in like manner, Cicero, when reviewing the opinions on the nature of the soul, coming to that of a musician, who held the soul was but a harmony, he pleasantly said, "This man has not gone out of his art."[67] But of such authors Aristotle says well: "Those who take in but a few considerations easily decide."[68]

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[65] Text Empir. against St. Math. vii. 133.

[66] If it is true that God is the great spring of motion in the universe, as the theory of moving forces is a part of mechanics and mechanics a department of physics, we cannot see how theology can be entirely divorced from natural philosophy. Physicists are too apt to consider the universe as eternally existing, without contemplating it in its finite aspect as a series of existences to be produced, and controlled by the force of laws externally impressed upon them. Hence their theory of moving forces is incomplete, as they do not take the prime mover into account, or supply us, in case of denying him, with the equivalent of his action.—*Ed.*

[67] "Hic ab arte sua non recessit."—Tuscul. Quæst. i. c. 10.

[68] Arist. De Gener. et Corrup. lib. 1.

Another error is, an impatience of doubting and a blind hurry of asserting without a mature suspension of judgment. For the two ways of contemplation are like the two ways of action so frequently mentioned by the ancients; the one plain and easy at first, but in the end impassable; the other rough and fatiguing in the entrance, but soon after fair and even: so in contemplation, if we begin with certainties, we shall end in doubts; but if we begin with doubts, and are patient in them, we shall end in certainties.

Another error lies in the manner of delivering knowledge, which is generally magisterial and peremptory, not ingenuous and open, but suited to gain belief without examination. And in compendious treatises for practice, this form should not be disallowed; but in the true delivering of knowledge, both extremes are to be avoided; viz., that of Velleius the Epicurean, who feared nothing so much as the non-appearance of doubting;"[69] and that of Socrates and the Academics, who ironically doubted of all things: but the true way is to propose things candidly, with more or less asseveration, as they stand in a man's own judgment.

There are other errors in the scope that men propose to themselves: for whereas the more diligent professors of any science ought chiefly to endeavor the making some additions or improvements therein, they aspire only to certain second prizes; as to be a profound commentator, a sharp disputant, a methodical compiler, or abridger, whence the returns or revenues of knowledge are sometimes increased, but not the inheritance and stock.

But the greatest error of all is, mistaking the ultimate end of knowledge; for some men covet knowledge out of a natural curiosity and inquisitive temper; some to entertain the mind with variety and delight; some for ornament and reputation; some for victory and contention; many for lucre and a livelihood; and but few for employing the Divine gift of reason to the use and benefit of mankind. Thus some appear to seek in knowledge a couch for a

[69] Cicero, De Natura Deorum, i. c. 8.

searching spirit; others, a walk for a wandering mind; others, a tower of state; others, a fort, or commanding ground; and others, a shop for profit or sale, instead of a storehouse for the glory of the Creator and the endowment of human life. But that which must dignify and exalt knowledge is the more intimate and strict conjunction of contemplation and action; a conjunction like that of Saturn, the planet of rest and contemplation; and Jupiter, the planet of civil society and action. But here, by use and action, we do not mean the applying of knowledge to lucre, for that diverts the advancement of knowledge, as the golden ball thrown before Atalanta, which, while she stoops to take up, the race is hindered.

"Declinat cursus, aurumque volubile tollit."—Ovid, Metam. x. 667.

Nor do we mean, as was said of Socrates, to call philosophy down from heaven to converse upon earth:[70] that is, to leave natural philosophy behind, and apply knowledge only to morality and policy: but as both heaven and earth contribute to the use and benefit of man, so the end ought to be, from both philosophies, to separate and reject vain and empty speculations, and preserve and increase all that is solid and fruitful.

We have now laid open by a kind of dissection the chief of those peccant humors which have not only retarded the advancement of learning, but tended to its traducement.[71] If we have cut too deeply, it must be remembered, "Fidelia vulnera amantis, dolosa oscula malignantis."[72] However, we will gain credit for our commendations, as we have been severe in our censures. It is, notwithstanding, far from our

[70] Cicero, Tuscul. Quæst. v. c. 4.

[71] To this catalogue of errors incident to learned men may be added, the frauds and impostures of which they are sometimes guilty, to the scandal of learning. Thus plagiarism, piracy, falsification, interpolation, castration, the publishing of spurious books, and the stealing of manuscripts out of libraries, have been frequent especially among ecclesiastical writers, and the Fratres Falsarii. For instances of this kind, see Struvius "De Doctis Impostoribus," Morhof in "Polyhist. de Pseudonymis, Anonymis, etc.," Le Clerc's "Ars Critica," Cave's "Historia Literaria Scriptorum Ecclesiasticorum," Father Simon, and Mabillon.—*Ed.*

[72] Prov. xxvii. 6.

purpose to enter into fulsome laudations of learning, or to make a hymn to the Muses, though we are of opinion that it is long since their rites were celebrated; but our intent is to balance the dignity of knowledge in the scale with other things, and to estimate their true values according to universal testimony.

Next, therefore, let us seek the dignity of knowledge in its original; that is, in the attributes and acts of God, so far as they are revealed to man, and may be observed with sobriety. But here we are not to seek it by the name of learning; for all learning is knowledge acquired, but all knowledge in God is original: we must, therefore, look for it under the name of wisdom or sapience, as the Scriptures call it.

In the work of creation we see a double emanation of virtue from God; the one relating more properly to power, the other to wisdom; the one expressed in making the matter, and the other in disposing the form. This being supposed, we may observe that, for anything mentioned in the history of the creation, the confused mass of the heavens and earth was made in a moment; whereas the order and disposition of it was the work of six days: such a mark of difference seems put between the works of power and the works of wisdom; whence, it is not written that God said, "Let there be heaven and earth," as it is of the subsequent works; but actually, that "God made heaven and earth"; the one carrying the style of a manufacture, the other that of a law, decree, or counsel.

To proceed from God to spirits. We find, as far as credit may be given to the celestial hierarchy of the supposed Dionysius the Areopagite, the first place is given to the angels of love, termed Seraphim; the second, to the angels of light, called Cherubim; and the third and following places to thrones, principalities, and the rest, which are all angels of power and ministry; so that the angels of knowledge and illumination are placed before the angels of office and domination."[73]

[73] See Dionys. Hierarch. 7, 8, 9.

To descend from spiritual and intellectual, to sensible and material forms; we read the first created form was light,[74] which, in nature and corporeal things, hath a relation and correspondence to knowledge in spirits, and things incorporeal; so, in the distribution of days, we find the day wherein God rested and completed his works, was blessed above all the days wherein he wrought them.[75]

After the creation was finished, it is said that man was placed in the garden to work therein, which work could only be work of contemplation; that is, the end of his work was but for exercise and delight, and not for necessity: for there being no reluctance of the creature, nor sweat of the brow, man's employment was consequently matter of pleasure, not labor. Again, the first acts which man performed in Paradise consisted of the two summary parts of knowledge, a view of the creature, and imposition of names.[76]

In the first event after the fall, we find an image of the two states, the contemplative and the active, figured out in the persons of Abel and Cain, by the two simplest and most primitive trades, that of the shepherd and that of the husbandman;[77] where again, the favor of God went to the shepherd, and not to the tiller of the ground.

So in the age before the flood, the sacred records mention the name of the inventors of music and workers in metal.[78] In the age after the flood, the first great judgment of God upon the ambition of man was the confusion of tongues,[79] whereby the open trade and intercourse of learning and knowledge was chiefly obstructed.

It is said of Moses, "That he was learned in all the wisdom of the Egyptians,"[80] which nation was one of the most ancient schools of the world; for Plato brings in the Egyptian priest saying to Solon, "You Grecians are ever children, having no knowledge of antiquity, nor antiquity of knowledge."[81] In the ceremonial laws of Moses we find,

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[74] Gen. i. 3. [75] Gen. ii. 3. [76] Gen. ii. 19. [77] Gen. iv. 2.
[78] Gen. iv. 21, 22. [79] Gen. xi. [80] Acts vii. 22. [81] Plat. Tim. iii. 22.

that besides the prefiguration of Christ, the mark of the people of God to distinguish them from the Gentiles, the exercise of obedience, and other divine institutions, the most learned of the rabbis have observed a natural and some of them a moral sense in many of the rites and ceremonies. Thus in the law of the leprosy, where it is said, "If the whiteness have overspread the flesh, the patient may pass abroad for clean; but if there be any whole flesh remaining, he is to be shut up for unclean" [82] —one of them notes a principle of nature, viz., that putrefaction is more contagious before maturity than after. Another hereupon observes a position of moral philosophy, that men abandoned to vice do not corrupt the manners of others, so much as those who are but half wicked. And in many other places of the Jewish law, besides the theological sense, there are couched many philosophical matters. The book of Job[83] likewise will be found, if examined with care, pregnant with the secrets of natural philosophy. For example, when it says, "Qui extendit Aquilonem super vacuum, et appendit terram super nihilum," the suspension of the earth and the convexity of the heavens are manifestly alluded to. Again, "Spiritus ejus ornavit cælos, et obstetricante manu ejus eductus est coluber tortuosus;" [84] and in another place, "Numquid conjungere valebis micantes stellas Pleiadas, aut gyrum Arcturi poteris dissipare?" [85] where the immutable[86] configuration of the fixed stars, ever preserving the same position, is with elegance described. So in another place: "Qui facit Arcturum, et Oriona, et Hyadas,[87] et interiora Austri," [88] where he again refers to

[82] Leviticus xiii. 12.
[83] See Job xxvi.—xxxviii.
[84] Job xxvi. 7, 13.
[85] xxxviii. 31.
[86] That is, to Job, who cannot be supposed to know what telescopes only have revealed, that stars change their declination with unequal degrees of motion. It is clear, therefore, that their distances must be variable, and that in the end the figures of the constellations will undergo mutation; as this change, however, will not be perceptible for thousands of years, it hardly comes within the limit of man's idea of mutation, and therefore, with regard to him, may be said to have no existence.—*Ed.*
[87] The Hyades nearly approach the letter V in appearance.
[88] The crown of stars which forms a kind of imperfect circle near Arcturus.

the depression of the South Pole in the expression of "interiora Austri," because the southern stars are not seen in our hemisphere.[89] Again, what concerns the generation of living creatures, he says, "Annon sicut lac mulsisti me, et sicut caseum coagulasti me?"[90] and touching mineral subjects, "Habet argentum venarum suarum principia, et auro locus est, in quo conflatur; ferrum de terra tollitur, et lapsis solutus calore in æs vertitur,"[91] and so forward in the same chapter.

Nor did the dispensation of God vary in the times after our Saviour, who himself first showed his power to subdue ignorance, by conferring with the priests and doctors of the law, before he showed his power to subdue nature by miracles. And the coming of the Holy Spirit was chiefly expressed in the gift of tongues, which are but the conveyance of knowledge.

So in the election of those instruments it pleased God to use for planting the faith, though at first he employed persons altogether unlearned, otherwise than by inspiration, the more evidently to declare his immediate working, and to humble all human wisdom or knowledge, yet in the next succession he sent out his divine truth into the world, attended with other parts of learning as with servants or handmaids; thus St. Paul, who was the only learned among the apostles, had his pen most employed in the writings of the New Testament.

Again, we find that many of the ancient bishops and fathers of the Church were well versed in all the learning of the heathens, insomuch that the edict of the Emperor Julian prohibiting Christians the schools and exercises, was accounted a more pernicious engine against the faith than all the sanguinary persecution of his predecessors.[92] Neither

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[89] It is not true that all the southern stars are invisible in our hemisphere. The text applies only to those whose southern declination is greater than the elevation of the equator over their part of the horizon, or, which is the same thing, than the complement of the place's latitude.—*Ed.*

[90] x. 10.

[91] xxviii. 1.

[92] Epist. ad Jamblic. Gibbon, vol ii. c. 23.

could Gregory the First, bishop of Rome, ever obtain the opinion of devotion even among the pious, for designing, though otherwise an excellent person, to extinguish the memory of heathen antiquity.[93] But it was the Christian Church which, amid the inundations of the Scythians from the northwest and the Saracens from the east, preserved in her bosom the relics even of heathen learning, which had otherwise been utterly extinguished. And of late years the Jesuits, partly of themselves and partly provoked by example, have greatly enlivened and strengthened the state of learning, and contributed to establish the Roman See.

There are, therefore, two principal services, besides ornament and illustration, which philosophy and human learning perform to faith and religion, the one effectually exciting to the exaltation of God's glory, and the other affording a singular preservative against unbelief and error. Our Saviour says, "Ye err, not knowing the Scriptures, nor the power of God";[94] thus laying before us two books to study, if we will be secured from error; viz., the Scriptures, which reveal the will of God, and the creation, which expresses his power; the latter whereof is a key to the former, and not only opens our understanding to conceive the true sense of the Scripture by the general notions of reason and the rules of speech, but chiefly opens our faith in drawing us to a due consideration of the omnipotence of God, which is stamped upon his works. And thus much for Divine testimony concerning the dignity and merits of learning.

Next for human proofs. Deification was the highest honor among the heathens; that is, to obtain veneration as a god was the supreme respect which man could pay to man, especially when given, not by a formal act of state as it usually was to the Roman emperors, but from a voluntary, internal assent and acknowledgment. This honor being so high, there was also constituted a middle kind, for human honors were inferior to honors heroical and di-

[93] Gibbon, vol. iv. c. 45.

[94] Matt. xxii. 29.

vine. Antiquity observed this difference in their distribution, that whereas founders of states, lawgivers, extirpers of tyrants, fathers of the people, and other eminent persons in civil merit, were honored but with the titles of heroes, or demigods, such as Hercules, Theseus, Minos, Romulus, etc. Inventors, and authors of new arts or discoveries for the service of human life, were ever advanced among the gods, as in the case of Ceres, Bacchus, Mercury, Apollo, and others. And this appears to have been done with great justice and judgment, for the merits of the former being generally confined within the circle of one age or nation, are but like fruitful showers, which serve only for a season and a small extent, while the others are like the benefits of the sun, permanent and universal. Again, the former are mixed with strife and contention, while the latter have the true character of the Divine presence, as coming in a gentle gale without noise or tumult.

The merit of learning in remedying the inconveniences arising from man to man, is not much inferior to that of relieving human necessities. This merit was livelily described by the ancients in the fiction of Orpheus' theatre, where all the beasts and birds assembled, and forgetting their several appetites, stood sociably together listening to the harp, whose sound no sooner ceased, or was drowned by a louder, but they all returned to their respective natures; for thus men are full of savage and unreclaimed desires, which as long as we hearken to precepts, laws, and religion, sweetly touched with eloquence and persuasion, so long is society and peace maintained; but if these instruments become silent, or seditions and tumult drown their music, all things fall back to confusion and anarchy.

This appears more manifestly when princes or governors are learned; for though he might be thought partial to his profession who said, "States would then be happy, when either kings were philosophers, or philosophers kings";[95]

[95] Plato (De Republica, b. 5) ii. 475.

yet so much is verified by experience, that the best times have happened under wise and learned princes; for though kings may have their errors and vices, like other men, yet if they are illuminated by learning, they constantly retain such notions of religion, policy, and morality, as may preserve them from destructive and irremediable errors or excesses; for these notions will whisper to them, even while counsellors and servants stand mute. Such senators likewise as are learned proceed upon more safe and substantial principles than mere men of experience—the former view dangers afar off, while the latter discover them not till they are at hand, and then trust to their wit to avoid them. This felicity of times under learned princes appears eminent in the age between the death of Domitian and the reign of Commodus, comprehending a succession of six princes, all of them learned, or singular favorers and promoters of learning. And this age, for temporal respects, was the happiest and most flourishing that ever the Roman State enjoyed; as was revealed to Domitian in a dream the night before he was slain,[96] when he beheld a neck and head of gold growing upon his shoulders; a vision which was, in the golden times succeeding this divination, fully accomplished. For his successor Nerva was a learned prince, a familiar friend and acquaintance of Apollonius, who expired reciting that line of Homer—"Phœbus, with thy darts revenge our tears."[97] Trajan, though not learned himself, was an admirer of learning, a munificent patron of letters, and a founder of libraries. Though the taste of his court was warlike, professors and preceptors were found there in great credit and admiration. Adrian was the greatest inquirer that ever lived, and an insatiable explorer into everything curious and profound. Antoninus, possessing the patient and subtile mind of a scholastic, obtained the *sobriquet* of Cymini Sector, or splitter of cumin-seed.[98] Of the two brothers who were raised to the rank

[96] Suetonius, Life of Domitian, c. 23. [97] Iliad, i. 42.

[98] "Unum de istis puto qui cuminum secant."—Julian. Cæs.

of gods, Lucius Commodus was versed in a more elegant kind of learning, and Marcus was surnamed the philosopher. These princes excelled the rest in virtue and goodness as much as they surpassed them in learning. Nerva was a mild philosopher, and who, if he had done nothing else than give Trajan to the world, would have sufficiently distinguished himself. Trajan was most famous and renowned above all the emperors for the arts both of peace and war. He enlarged the bounds of empire, marked out its limits and its power. He was, in addition, so great a builder, that Constantine used to call him Parietaria, or Wallflower,[99] his name being carved upon so many walls. Adrian strove with time for the palm of duration, and repaired its decays and ruins wherever the touch of its scythe had appeared. Antoninus was pious in name and nature. His nature and innate goodness gained him the reverence and affection of all classes, ages, and conditions; and his reign, like his life, was long and unruffled by storms. Lucius Commodus, though not so perfect as his brother, exceeded many of the emperors in virtue. Marcus, formed by nature to be the model of every excellence, was so faultless, that Silenus, when he took his seat at the banquet of the gods, found nothing to carp at in him but his patience in humoring his wife.[100] Thus, in the succession of these six princes, we may witness the happy fruits of learning in sovereignty painted in the great table of the world.

Nor has learning a less influence on military genius than on merit employed in the state, as may be observed in the lives of Alexander the Great and Julius Cæsar, a few examples of which it will not be impertinent here to notice.

Alexander was bred under Aristotle,[101] certainly a great philosopher, who dedicated several of his treatises to him. He was accompanied by Calisthenes and several other learned persons both in his travels and conquests. The value this

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[99] Βοτάνη τοίχου. He called Adrian ἐργαλειον ζωγραφικόν.

[100] Julian. Cæsares.

[101] For these anecdotes see Plutarch's life of Alex.

great monarch set upon learning appears in the envy he expressed of Achilles' great fortune in having so good a trumpet of his actions and prowess as Homer's verses; in the judgment he gave concerning what object was most worthy to be inclosed in the cabinet of Darius found among his spoils, which decided the question in favor of Homer's works; in his reprehensory letter to Aristotle, when chiding his master for laying bare the mysteries of philosophy, he gave him to understand that himself esteemed it more glorious to excel others in learning and knowledge than in power and empire. As to his own erudition, evidences of its perfection shine forth in all his speeches and writing, of which, though only small fragments have come down to us, yet even these are richly impressed with the footsteps of the moral sciences. For example, take his words to Diogenes, and judge if they do not inclose the very kernel of one of the greatest questions in moral philosophy, viz., whether the enjoyment or the contempt of earthly things leads to the greatest happiness; for upon seeing Diogenes contented with so little, he turned round to his courtiers, who were deriding the cynic's condition, and said, "If I were not Alexander, I would be Diogenes." (But Seneca, in his comparison, gives the preference to Diogenes, saying that Diogenes had more things to refuse than it was in the disposition of Alexander to confer.)[102] For his skill in natural science, observe his customary saying, that he felt his mortality chiefly in two things—sleep and lust.[103] This expression, pointing as it does to the indigence and redundance of nature manifested by these two harbingers of death, savors more of an Aristotle and a Democritus than of an Alexander. In poesy, regard him rallying in his wounds one of his flatterers, who was wont to ascribe unto him Divine honor. "Look," said he, "this is the blood of a man—not such liquor as Homer speaks of, which ran from Venus's hand when it

[102] Seneca de Benef. v. 5. [103] Vid. Seneca, Ep. Mor. vi. 7.

was pierced by Diomedes."[104] In logic, observe, in addition to his power of detecting fallacies and confuting or retorting arguments, his rebuke to Cassander, who ventured to confute the arraigners of Antipater, his father, Alexander having incidentally asked, "Do you think these men would come so far to complain, except they had just cause?" Cassander replied, "That was the very thing which had given them courage, since they hoped that the length of the journey would entirely clear them of calumnious motives." "See," said Alexander, "the subtilty of Aristotle, taking the matter *pro* and *con*." Nevertheless he did not shrink to turn the same art to his own advantage which he reprehended in others; for, bearing a secret grudge to Calisthenes, upon that rhetorician having drawn down great applause by delivering, as was usual at banquets, a spontaneous discourse in praise of the Macedonian nation, Alexander remarked, that it was easy to be eloquent upon a good topic, and requested him to change his note, and let the company hear what he could say against them. Calisthenes obeyed the request with such sharpness and vivacity, that Alexander interrupted him, saying, "That a perverted mind, as well as a choice topic, would breed eloquence." As regards rhetoric, consider his rebuke of Antipater, an imperious and tyrannous governor, when one of Antipater's friends ventured to extol his moderation to Alexander, saying that he had not fallen into the Persian pride of wearing the purple, but still retained the Macedonian habit. "But Antipater," replied Alexander, "is all purple within."[105] Consider also that other excellent metaphor which he used to Parmenio, when that general showed him, from the plains of Arbella, the innumerable multitude of his enemies, which, viewed as they lay encamped in the night, represented a host of stars; and thereupon advised Alexander to assail them at once. The hero rejected the proposition, saying, "I will not steal a victory." As con-

[104] Iliad, iv. 340.

[105] ὀλοπορφυρος. Apop. Reg. et Imp.

cerns policy, weigh that grave and wise distinction, which all ages have accepted, which he made between his two chief friends, Hephæstion and Craterus, saying, "That the one loved Alexander, and the other the king." Also observe how he rebuked the error ordinary with counsellors of princes, which leads them to give advice according to the necessity of their own interest and fortune, and not of their master's. When Darius had made certain proposals to Alexander, Parmenio said, "I would accept these conditions if I were Alexander." Alexander replied, "So surely would I were I Parmenio." Lastly, consider his reply to his friends, who asked him what he would reserve for himself, since he lavished so many valuable gifts upon others. "Hope," said Alexander, who well knew that, all accounts being cleared—"hope is the true inheritance of all that resolve upon great enterprises." This was Julius Cæsar's portion when he went into Gaul, all his estate being exhausted by profuse largess. And it was also the portion of that noble prince, howsoever transported with ambition, Henry, Duke of Guise; for he was pronounced the greatest usurer in all France, because all his wealth was in names, and he had turned his whole estate into obligations. But perhaps the admiration of this prince in the light, not of a great king, but as Aristotle's scholar, has carried me too far.

As regards Julius Cæsar, his learning is not only evinced in his education, company, and speeches, but in a greater degree shines forth in such of his works as have descended to us. In the Commentary, that excellent history which he has left us, of his own wars, succeeding ages have admired the solidity of the matter, the vivid passages and the lively images of actions and persons, expressed in the greatest propriety of diction and perspicuity of narration. That this excellence of style was not the effect of undisciplined talent, but also of learning and precept, is evident from that work of his, entitled "De Analogia," [106] in which he pro-

[106] Vid. Cic. *Brutus*, 72.

pounds the principles of grammatical philosophy, and endeavors to fashion mere conventional forms to congruity of expression, taking, as it were, the picture of words from the life of reason. We also perceive another monument of his genius and learning in the reformation of the Calendar, in accomplishing which he is reported to have said that he esteemed it as great a glory to himself to observe and know the law of the heavens, as to give laws to men upon earth. In his Anti-Cato,[107] he contended as much for the palm of wit as he strove in his battles for victory, and did not shrink from confronting the greatest champion of the pen in those times, Cicero the orator. Again, in his book of apothegms, he deemed it more honorable to note the wise sayings of others, than to record every word of his own as an oracle or apothegm, as many vain princes are by flattery urged to do.[108] And yet, should I enumerate any of them, as I did before those of Alexander, we should find them to be such as Solomon points to in the saying, "Verba sapientum tanquam aculei, et tanquam clavi in altum defixi."[109] Of these, however, I shall only relate three, not so remarkable for elegance as for vigor and efficacy. He who could appease a mutiny in his army by a word, must certainly be regarded as a master of language. This Cæsar performed under the following circumstances. The generals always addressed the army as milites; the magistrates, on the other hand, in their charges to the people, used the word Quirites. Now the soldiers being in tumult, and feignedly praying to be disbanded, with a view to draw Cæsar to other conditions, the latter resolved not to succumb, and after a short pause, began his speech with "Ego, Quirites,"[110] which implied they were at once cashiered: upon which, the soldiers were so astonished and confused that they relinquished their demands, and begged to be addressed by the old appellation of milites. The second

[107] Vid. Cic. ad Att. xii. 40, 41; xiii. 50; and Top. xxv.
[108] Cic. ad Fam. ix. 16.
[109] Eccl. xii. 11.
[110] Suet. Life Jul. Cæs. c. 70.

saying thus transpired. Cæsar extremely affected the name of king, and some were set on to salute him with that title as he passed by. Cæsar, however, finding the cry weak and poor, put it off thus in a kind of jest, as if they had mistaken his surname: "Non rex sum, sed Cæsar," [111] I am not king, but Cæsar,[112] an expression, the pregnancy of which it is difficult to exhaust; for first, it was a refusal of the name, though not serious; again, it displayed infinite confidence and magnanimity in presuming Cæsar to be the greater title, a presumption which posterity has fully confirmed. But chiefly the expression is to be admired as betraying a great incentive to his designs, as if the state strove with him for a mere name, with which even mean families were invested. For Rex was a surname with the Romans, as well as King is with us. The last saying I shall mention, refers to Metellus: as soon as Cæsar had seized Rome, he made straightway to the ærarium to seize the money of the state; but Metellus being tribune, forestalled his purpose, and denied him entrance: whereupon Cæsar threatened, if he did not desist, to lay him dead on the spot. But presently checking himself, added, "Adolescens, durius est mihi hoc dicere quam facere"; Young man, it is harder for me to say this than to do it.[113] A sentence compounded of the greatest terror and clemency that could proceed out of the mouth of man. But to conclude with Cæsar. It is evident he was quite aware of his proficiency in this respect, from his scoffing at the idea of the strange resolution of Sylla, which some one expressed about his resignation of the dictatorship: "Sylla," said Cæsar, "was unlettered, and therefore knew not how to dictate." [114]

And here we should cease descanting on the concurrence

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[111] Suet. Life Jul. Cæs. 79.

[112] The point of this expression arises from the absence of the article in the Latin tongue, which made rex, a king, exactly convertible with the title of those families who bore Rex for their surname. With us, also, there are many individuals who bear the name of King, and among the French the name Roi is not uncommon.—*Ed.*

[113] Plutarch; cf. Cic. ad Att. x. 8.

[114] Suet. Life, lxxvii.

of military virtue with learning, as no example could come with any grace after Alexander and Cæsar, were it not for an extraordinary case touching Xenophon, which raised that philosopher from the depths of scorn to the highest pinnacle of admiration. In his youth, without either command or experience, that philosopher followed the expedition of Cyrus the younger against Artaxerxes, as a volunteer, to enjoy the love and conversation of his friend Proxenus.[115] Cyrus being slain on the field, Falinus came to the remnant of his army with a message from the king, who, presuming on the fewness of their number, and the perilous nature of their position in the midst of foreign enemies, cut off from their country by many navigable rivers, and many hundred miles, had dared to command them to surrender their army, and submit entirely to his mercy. Before an answer was returned, the heads of the army conferred familiarly with Falinus, and among the rest Xenophon happened to say, "Why, Falinus, we have only these two things left, our arms and our virtue, and if we yield up our arms, how can we make use of our virtue?" Falinus, with an ironical smile, replied, "If I be not deceived, young man, you are an Athenian; and I believe you study philosophy, as you talk admirably well. But you grossly deceive yourself if you think your courage can withstand the king's power."[116] Here was the scorn, but the wonder followed. This young philosopher, just emerged from the school of Socrates, after all the chieftains of the army had been murdered by treason, conducted those ten thousand foot through the heart of the king's territories, from Babylon to Græcia, untouched by any of the king's forces. The world, at this act of the young scholar, was stricken with astonishment, and the Greeks encouraged in succeeding ages to invade the kings of Persia. Jason the Thessalian proposed the plan, Agesilaus the Spartan attempted its execution, and Alexander the Macedonian finally achieved the conquest.

[115] Xen. Anab. ii. toward the end.

[116] Xen. Anab. ii. 1—12.

To proceed from imperial and military, to moral and private virtue; it is certain that learning softens the barbarity and fierceness of men's minds, according to the poet,

"Scilicet ingenuas didicisse fideliter artes
Emollit mores, nec sinit esse feros." [117]

But then it must not be superficial, for this rather works a contrary effect. Solid learning prevents all levity, temerity, and insolence, by suggesting doubts and difficulties, and inuring the mind to balance the reasons on both sides, and reject the first offers of things, or to accept of nothing but what is first examined and tried. It prevents vain admiration, which is the root of all weakness: things being admired either because they are new, or because they are great. As for novelty, no man can wade deep in learning, without discovering that he knows nothing thoroughly; nor can we wonder at a puppet-show, if we look behind the curtain. With regard to greatness; as Alexander, after having been used to great armies, and the conquests of large provinces in Asia, when he received accounts of battles from Greece, which were commonly for a pass, a fort, or some walled town, imagined he was but reading Homer's battle of the frogs and the mice; so if a man considers the universal frame, the earth and its inhabitants will seem to him but as an anthill, where some carry grain, some their young, some go empty, and all march but upon a little heap of dust.

Learning also conquers or mitigates the fear of death and adverse fortune, which is one of the greatest impediments to virtue and morality; for if a man's mind be deeply seasoned with the consideration of the mortality and corruptibility of things, he will be as little affected as Epictetus, who one day seeing a woman weeping for her pitcher that was broken, and the next day a woman weeping for her son that was dead, said calmly, "Yesterday I saw a brittle thing

[117] Ovid. Ep. Pont. ii. ix. 47.

broken, and to-day a mortal die."[118] And hence Virgil excellently joined the knowledge of causes and the conquering of fears together as concomitants:

> "Felix qui potuit rerum cognoscere causas,
> Quique metus omnes, et inexorabile fatum,
> Subjecit pedibus; strepitumque Acherontis avari."[119]

It were tedious to enumerate the particular remedies which learning affords for all the diseases of the mind, sometimes by purging the morbific humors, sometimes by opening obstructions, helping digestion, increasing the appetite, and sometimes healing exulcerations, etc. But to sum up all, it disposes the mind not to fix or settle in defects, but to remain ever susceptible of improvement and reformation; for the illiterate person knows not what it is to descend into himself, or call himself to an account, nor the agreeableness of that life which is daily sensible of its own improvement; he may perhaps learn to show and employ his natural talents, but not increase them; he will learn to hide and color his faults, but not to amend them, like an unskilful mower, who continues to mow on without whetting his scythe. The man of learning, on the contrary, always joins the correction and improvement of his mind with the use and employment thereof. To conclude, truth and goodness differ but as the seal and the impression; for truth imprints goodness, while the storms of vice and perturbation break from the clouds of error and falsehood.

From moral virtue we proceed to examine whether any power be equal to that afforded by knowledge. Dignity of command is always proportionable to the dignity of the commanded. To have command over brutes as a herdsman is a mean thing; to have command over children as a schoolmaster is a matter of small honor; and to have command over slaves is rather a disgrace than an honor. Nor is the command of a tyrant much better over a servile

[118] See Epictetus, Enchir. c. 33, with the comment of Simplicius.
[119] Georg. ii. 490.

and degenerate people; whence honors in free monarchies and republics have ever been more esteemed than in tyrannical governments, because to rule a willing people is more honorable than to compel. But the command of knowledge is higher than the command over a free people, as being a command over the reason, opinion, and understanding of men, which are the noblest faculties of the mind that govern the will itself; for there is no power on earth that can set up a throne in the spirits of men but knowledge and learning; whence the detestable and extreme pleasure wherewith archheretics, false prophets, and impostors are transported upon finding they have a dominion over the faith and consciences of men, a pleasure so great, that if once tasted scarce any torture or persecution can make them forego it. But as this is what the Apocalypse calls the depths of Satan,[120] so the just and lawful rule over men's understanding by the evidence of truth and gentle persuasion, is what approaches nearest to the Divine sovereignty.

With regard to honors and private fortune, the benefit of learning is not so confined to states as not likewise to reach particular persons; for it is an old observation, that Homer has given more men their livings than Sylla, Cæsar, or Augustus, notwithstanding their great largesses. And it is hard to say whether arms or learning have advanced the greater numbers. In point of sovereignty, if arms or descent have obtained the kingdom, yet learning has obtained the priesthood, which was ever in competition with empire.

Again, the pleasure and delight of knowledge and learning surpass all others; for if the pleasures of the affections exceed the pleasures of the senses as much as the obtaining a desire or a victory exceeds a song or a treat, shall not the pleasures of the understanding exceed the pleasures of the affections? In all other pleasures there is a satiety, and after use their verdure fades; which shows they are but

[120] Rev. ii. 24.

deceits and fallacies, and that it was the novelty which pleased, not the quality; whence voluptuous men frequently turn friars, and ambitious princes melancholy. But of knowledge there is no satiety, for here gratification and appetite are perpetually interchanging, and consequently this is good in itself, simply, without fallacy or accident. Nor is that a small pleasure and satisfaction to the mind, which Lucretius describes to this effect[121]: "It is a scene of delight to be safe on shore and see a ship tossed at sea, or to be in a fortification and see two armies join battle upon a plain. But it is a pleasure incomparable for the mind to be seated by learning in the fortress of truth, and from thence to view the errors and labors of others."

To conclude. The dignity and excellence of knowledge and learning is what human nature most aspires to for the securing of immortality, which is also endeavored after by raising and ennobling families, by buildings, foundations, and monuments of fame, and is in effect the bent of all other human desires. But we see how much more durable the monuments of genius and learning are than those of the hand. The verses of Homer have continued above five and twenty hundred years without loss, in which time numberless palaces, temples, castles, and cities have been demolished and are fallen to ruin. It is impossible to have the true pictures or statues of Cyrus, Alexander, Cæsar, or the great personages of much later date, for the originals cannot last, and the copies must lose life and truth; but the images of men's knowledge remain in books, exempt from the injuries of time, and capable of perpetual renovation. Nor are these properly called images; because they generate still, and sow their seed in the minds of others, so as to cause infinite actions and opinions in succeeding ages. If, therefore, the invention of a ship was thought so noble, which carries commodities from place to place and conso-

[121] "Suave mari magno turbantibus æquora ventis," etc. De Rerum Natura, ii. 1–13.

ciateth the remotest regions in participation of their fruits, how much more are letters to be valued, which, like ships, pass through the vast ocean of time, and convey knowledge and inventions to the remotest ages? Nay, some of the philosophers who were most immersed in the senses, and denied the immortality of the soul, yet allowed that whatever motions the spirit of man could perform without the organs of the body might remain after death, which are only those of the understanding, and not of the affections, so immortal and incorruptible a thing did knowledge appear to them.[122] And thus having endeavored to do justice to the cause of knowledge, divine and human, we shall leave Wisdom to be justified of her children.[123]

SECOND BOOK

CHAPTER I

General Divisions of Learning into History, Poetry, and Philosophy, in relation to the Three Faculties of the Mind—Memory, Imagination, and Reason. The same Distribution applies to Theology

TO THE KING

IT IS befitting, excellent king, that those who are blessed with a numerous offspring, and who have a pledge in their descendants that their name will be carried down to posterity, should be keenly alive to the welfare of future times, in which their children are to perpetuate their power and empire. Queen Elizabeth, with respect to her celibacy, was rather a sojourner than an inhabitant of the present world, yet she was an ornament to her age and prosperous

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[122] The merits of learning have been incidentally shown by many, but expressly by few. Among the latter may be included Johannes Wouwerius de Polymathia, Gulielmus Budæus de Philologia, Morhof in "Hist. Polyhistor.," and Stollius in "Introduct. in Historiam Literariam." To these may be added, Baron Spanheim, M. Perault, Sir William Temple, Gibbon, and Milton.—*Ed.*

[123] Matt. xi. 19.

in many of her undertakings. But to your Majesty, whom God has blessed with so much royal issue, worthy to immortalize your name, it particularly appertains to extend your cares beyond the present age, which is already illuminated with your wisdom, and extend your thoughts to those works which will interest remotest posterity. Of such designs, if affection do not deceive me, there is none more worthy and noble than the endowment of the world with sound and fruitful knowledge. For why should a few favorite authors stand up like Hercules' Columns, to bar further sailing and discovery, especially since we have so bright and benign a star in your Majesty to guide and conduct us?

It remains, therefore, that we consider the labors which princes and others have undertaken for the advancement of learning, and this markedly and pointedly, without digression or amplification. Let it then be granted, that to the completion of any work munificent patronage is as essential as soundness of direction and conjunction of labors. The first multiplies energy, the second prevents error, and the third compensates for human weakness. But the principal of these is direction, or the pointing out and the delineation of the direct way to the completion of the object in view. For "claudus in via antevertit cursorem extra viam"; and Solomon appositely says, "If the iron is not pointed, greater strength is to be used" [1]—so what really prevaileth over everything is wisdom, by which he insinuates that a wise selection of means leads us more directly to our object than a straining or accumulation of strength. Without wishing to derogate from the merit of those who in any way have advanced learning, this much I have been led to say, from perceiving that their works and acts have tended rather to the glory of their name than the progression or proficiency of the sciences—to augment the man of learning in the minds of philosophers, rather than reform or elevate the sciences themselves.

[1] Ecc. x. 10.

The institutions which relate to the extension of letters are threefold; viz., schools and universities, books, and professors. For as water, whether of the dew of heaven or spring of the earth, would speedily lose itself in the ground unless collected into conduits and cisterns, so it seemeth this excellent liquor of knowledge, whether it descend from Divine inspiration or spring from human sense, would soon hide itself in oblivion, unless, collected in books, traditions, academies, and schools, it might find a permanent seat, and a fructifying union of strength.

The works which concern the seats of learning are four—buildings, endowments, privileges, and charters, which all promote quietness and seclusion, freedom from cares and anxieties. Such stations resemble those which Virgil prescribes for beehiving:

> "Principio sedes apibus, statioque petenda
> Quo neque sit ventis aditus." [2]

The works which relate to books are two—first, libraries, which are as the shrines where the bones of old saints full of virtue lie buried; secondly, new editions of writers, with correcter impressions, more faultless versions, more useful commentaries, and more learned annotations.

Finally, the works which pertain to the persons of the learned are, besides the general patronage which ought to be extended to them, twofold. The foundation of professorships in sciences already extant, and in those not yet begun or imperfectly elaborated.

These are, in short, the institutions on which princes and other illustrious men have displayed their zeal for letters. To me, dwelling upon each patron of letters, that notion of Cicero occurs, which urged him upon his return not to particularize, but to give general thanks—"Difficile non aliquem, in gratum quenquam, prætereire." [3] Rather should we, conformably to Scripture, look forward to the

[2] Georg. iv. 8.
[3] Apocryphal Orat. post Repit. in Sen. xii. 30; cf. pro Pl. xxx. 74.

course we have yet to run, than regard the ground already behind us.

First, therefore, I express my surprise, that among so many illustrious colleges in Europe, all the foundations are engrossed by the professions, none being left for the free cultivation of the arts and sciences. Though men judge well who assert that learning should be referred to action, yet by reposing too confidently in this opinion, they are apt to fall into the error of the ancient fable,[4] which represented the members of the body at war with the stomach, because it alone, of all the parts of the frame, seemed to rest, and absorb all the nourishment. For if any man esteem philosophy and every study of a general character to be idle, he plainly forgets that on their proficiency the state of every other learning depends, and that they supply strength and force to its various branches. I mainly attribute the lame progress of knowledge hitherto to the neglect or the incidental study of the general sciences. For if you want a tree to produce more than its usual burden of fruit, it is not anything you can do to the branches that will effect this object, but the excitation of the earth about its roots and increasing the fertility of the soil; nor must it be overlooked that this restriction of foundations and endowments to professional learning has not only dwarfed the growth of the sciences, but been prejudicial to states and governments themselves. For since there is no collegiate course so free as to allow those who are inclined to devote themselves to history, modern languages, civil policy, and general literature; princes find a dearth of able men to manage their affairs and efficiently conduct the business of the commonwealth.

Since the founders of colleges plant, and those who endow them water, we are naturally led to speak in this place of the mean salaries apportioned to public lectureships, whether in the sciences or the arts. For such offices

[4] Speech of Menenius Agrippa, Livy, ii. 32.

being instituted not for an ephemeral purpose, but for the constant transmission and extension of learning, it is of the utmost importance that the men selected to fill them be learned and gifted. But it is idle to expect that the ablest scholars will employ their whole energy and time in such functions unless the reward be answerable to that competency which may be expected from the practice of a profession. The sciences will only flourish on the condition of David's military law—that those who remain with the baggage shall have equal part with those who descend to the fight, otherwise the baggage will be neglected. Lecturers being in like manner guardians of the literary stores whence those who are engaged in active service draw, it is but just that their labors should be equally recompensed, otherwise the reward of the fathers of the sciences not being sufficiently ample, the verse will be realized—

"Et patrum invalidi referent jejunia nati." [5]

The next deficiency we shall notice is, the want of philosophical instruments, in crying up which we are aided by the alchemists, who call upon men to sell their books, and to build furnaces, rejecting Minerva and the Muses as barren virgins, and relying upon Vulcan. To study natural philosophy, physic, and many other sciences to advantage, books are not the only essentials—other instruments are required; nor has the munificence of men been altogether wanting in their provisions. For spheres, globes, astrolabes, maps, and the like, have been provided for the elucidation of astronomy and cosmography; and many schools of medicine are provided with gardens for the growth of simples, and supplied with dead bodies for dissection. But these concern only a few things. In general, however, there will be no inroad made into the secrets of nature unless experiments, be they of Vulcan or Dædalus, furnace, engine, or any other kind, are allowed for; and therefore as the secre-

[5] Virg. Georg. iii. 128.

taries and spies of princes and states bring in bills for intelligence, so you must allow the spies and intelligences of nature to bring in their bills, or else you will be ignorant of many things worthy to be known. And if Alexander placed so large a treasure at Aristotle's command, for the support of hunters, fowlers, fishers, and the like, in much more need do they stand of this beneficence who unfold the labyrinths of nature.

Another defect I discover is the neglect in vice-chancellors, heads of houses, princes, inspectors, and others, of proper supervision or diligent inquiry into the course of studies, with a view to a thorough reformation of such parts as are ill suited to the age, or of unwise institution. For it is one of your Majesty's sage maxims, that as respects customs and precedents, we must consider the times in which they took their rise, since much is detracted from their authority, if such are found feeble and ignorant. It is, therefore, all the more requisite, since the university statutes were framed in very obscure times, to institute an inquiry into their origin. Of errors of this nature I will give an example or two from such objects as are most obvious and familiar. The one is, that scholars are inducted too early into logic and rhetoric—arts which, being the cream of all others, are fitter for graduates than children and novices. Now, being the gravest of the sciences, these arts are composed of rules and directions, for setting forth and methodizing the matter of the rest, and, therefore, for rude and blank minds, who have not yet gathered that which Cicero styles *sylva* and *supellex*[6] matter, and fecundity, to begin with those arts is as if one were to paint or measure the wind, and has no other effect than to degrade the universal wisdom of these arts into childish sophistry and contemptible affectation. This error has had the inevitable result of rendering the treatises on those sciences superficial, and dwarfing them to the capacities of children.

[6] Sylva de Orat. iii. 26; Supellex Orat. xxiv.

Another error to be noticed in the present academical system is the separation between invention and memory, their exercises either being nothing but a set form of words, where no play is given to the understanding, or extemporaneous, in the delivery of which no room is left to the memory. In practical life, however, a blending of the powers of judgment and memory is alone put into requisition, so that these practices, not being adapted to the life of action, rather pervert than discipline the mind. This defect is sooner discovered by scholars than by others, when they come to the practice of the civil professions. We may conclude our observations on university reform, with the expression of Cæsar in his letter to Oppius and Balbus: "Hoc quemadmodum fieri possit, nonnulla mihi in mentem veniunt, et multa reperiri possunt: de iis rebus rogo vos, ut cogitationem suspcipiatis."[7]

The next want I discover is the little sympathy and correspondence which exists between colleges and universities, as well throughout Europe as in the same state and kingdom. In this we have an example in many orders and sodalities, which, though scattered over several sovereignties and territories, yet enter into a kind of contract, fraternity, and correspondence with one another, and are associated under common provincials and generals. And, surely, as nature creates brotherhood in families, and trades contract brotherhood in communities,[8] and the anointment of God established a brotherhood in kings and bishops, in like manner there should spring up a fraternity in learning, an illumination, relating to that paternity which is attributed to God, who is called the Father of lights.

Lastly, I may lament that no fit men have been engaged to forward those sciences which yet remain in an unfinished

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[7] Cic. ad Att. ix. 7.

[8] The original is sodality, or guild societies, which had their origin in the Middle Ages, when members of the same calling formed a common fund and joined in certain spiritual exercises, taking a saint for their patron out of the Roman calendar. These institutions have since become commercial.—*Ed.*

state. To supply this want it may be of service to perform, as it were, a lustrum of the sciences, and take account of what have been prosecuted and what omitted. For the idea of abundance is one of the causes of dearth; and the multitude of books produces a deceitful impression of superfluity. This, however, is not to be remedied by destroying the books already written, but by making more good ones, which, like the serpent of Moses, may devour the serpents of the enchanters.[9] The removal of the defects I have enumerated, except the last, are indeed opera basilica, toward which the endeavors of one man can be but as an image on a crossroad, which points out the way, but cannot tread it. But as the survey of the sciences which we have proposed lies within the power of a private individual, it is my intention to make the circuit of knowledge, noticing what parts lie waste and uncultivated, and abandoned by the industry of man, with a view to engage, by a faithful mapping out of the deserted tracks, the energies of public and private persons in their improvement. My attention, however, is alone confined to the discovery, not to the correction of errors. For it is one thing to point out what land lies uncultivated, and another thing to improve imperfect husbandry.

In completing this design, I am ignorant neither of the greatness of the work nor my own incapacity. My hope, however, is, that, if the extreme love of my subject carry me too far, I may at least obtain the excuse of affection. It is not granted to man to love and be wise: "amare et sapere." On such topics opinion is free, and that liberty of judgment which I exercise myself lies equally at the disposition of all. And I for my part shall be as glad to receive correction from others as I am ready to point out defects myself. It is the common duty of humanity: "nam qui erranti comiter monstrat viam."[10] I, indeed, foresee that many of the defects and omissions I shall point out

[9] Exod. vii. 10.

[10] Cic. de Off. i. 16.

will be much censured, some as being already completed, and others as too difficult to be effected. For the first objection I must refer to the details of my subject; with regard to the last, I take it for granted that those works are possible which may be accomplished by some person, though not by every one; which may be done by many, though not by one; which may be completed in the succession of ages, though not within the hour-glass of one man's life; and which may be reached by public effort, though not by private endeavor. Nevertheless, if any man prefer the sentence of Solomon—"Dicit piger, Leo est in via";[11] to that of Virgil, "possunt, quia posse videntur"[12]—I shall be content to have my labors received but as the better kind of wishes. For as it requires some knowledge to ask an apposite question, he also cannot be deemed foolish who entertains sensible desires.

The justest division of human learning is that derived from the three different faculties of the soul, the seat of learning: history being relative to the memory, poetry to the imagination, and philosophy to the reason. By poetry we understand no more than feigned history or fable, without regard at present to the poetical style. History is properly concerned about individuals, circumscribed by time and place; so likewise is poetry, with this difference, that its individuals are feigned, with a resemblance to true history, yet like painting, so as frequently to exceed it. But philosophy, forsaking individuals, fixes upon notions abstracted from them, and is employed in compounding and separating these notions according to the laws of nature and the evidence of things themselves.

Any one will easily perceive the justness of this division that recurs to the origin of our ideas. Individuals first strike the sense, which is as it were the port or entrance of the understanding. Then the understanding ruminates upon these images or impressions received from the sense, either simply reviewing them, or wan-

[11] Prov. xxii. 13.

[12] Virg. Æn. v. 231.

tonly counterfeiting and imitating them, or forming them into certain classes by composition or separation. Thus it is clearly manifest that history, poetry, and philosophy flow from the three distinct fountains of the mind, viz., the memory, the imagination, and the reason; without any possibility of increasing their number. For history and experience are one and the same thing; so are philosophy and the sciences.

Nor does divine learning require any other division; for though revelation and sense may differ both in matter and manner, yet the spirit of man and its cells are the same; and in this case receive, as it were, different liquors through different conduits. Theology, therefore, consists—1, of sacred history; 2, parable, or divine poesy; and 3, of holy doctrine or precept, as its fixed philosophy. As for prophecy, which seems a part redundant, it is no more than a species of history; divine history having this prerogative over human, that the narration may precede, as well as succeed the fact.

CHAPTER II

History divided into Natural and Civil; Civil subdivided into Ecclesiastical and Literary. The Division of Natural History according to the subject matter, into the History of Generations, of Præter-Generations, and the Arts

HISTORY is either natural or civil: the natural records the works and acts of nature; the civil, the works and acts of men. Divine interposition is unquestionably seen in both, particularly in the affairs of men, so far as to constitute a different species of history, which we call sacred or ecclesiastical. But such is the dignity of letters and arts, that they deserve a separate history, which, as well as the ecclesiastical, we comprehend under civil history.

We form our division of natural history upon the threefold state and condition of nature; which is, 1, either free, proceeding in her ordinary course, without molestation; or 2, obstructed by some stubborn and less common matters, and thence put out of her course, as in the production of monsters; or 3, bound and wrought upon by human means, for the production of things artificial. Let all natural history, therefore, be divided into the history of generations, præter-generations, and arts; the first to consider nature at liberty; the second, nature in her errors; and the third, nature in constraint.

The history of arts should the rather make a species of natural history, because of the prevalent opinion, as if art were a different thing from nature, and things natural different from things artificial: whence many writers of natural history think they perform notably, if they give us the history of animals, plants, or minerals, without a word of the mechanic arts. A further mischief is to have art esteemed no more than an assistant to nature, so as to help her forward, correct or set her free, and not to bend, change, and radically affect her; whence an untimely despair has crept upon mankind; who should rather be assured that artificial things differ not from natural in form or essence, but only in the efficient: for man has no power over nature in anything but motion, whereby he either puts bodies together, or separates them. And therefore, so far as natural bodies may be separated or conjoined, man may do anything. Nor matters it, if things are put in order for producing effects, whether it be done by human means or otherwise. Gold is sometimes purged by the fire, and sometimes found naturally pure: the rainbow is produced after a natural way, in a cloud above; or made artificially, by the sprinkling of water below. As nature, therefore, governs all things by means—1, of her general course; 2, her excursion; and 3, by means of human assistance; these three parts must be received into natural history, as in some measure they are by Pliny.

The first of these parts, the history of creatures, is extant in tolerable perfection; but the two others, the history of monsters and the history of arts, may be noted as deficient. For I find no competent collection of the works of nature digressing from the ordinary course of generations, productions, and motions; whether they be singularities of place and region, or strange events of time and chance; effects of unknown properties, or instances of exceptions to general rules. We have indeed many books of fabulous experiments, secrets, and frivolous impostures, for pleasure and strangeness; but a substantial and well-purged collection of heteroclites, or irregularities of nature, carefully examined and described, especially with a due rejection of fable and popular error, is wanting: for as things now stand, if false facts in nature be once on foot, through the neglect of examination, the countenance of antiquity, and the use made of them in discourse, they are scarce ever retracted.

The design of such a work, of which we have a precedent in Aristotle, is not to content curious and vain minds, but—1, to correct the depravity of axioms and opinions, founded upon common and familiar examples; and 2, to show the wonders of nature, which give the shortest passage to the wonders of art; for by carefully tracing nature in her wanderings, we may be enabled to lead or compel her to the same again. Nor would we in this history of wonders have superstitious narrations of sorceries, witchcrafts, dreams, divinations, etc., totally excluded, where there is full evidence of the fact; because it is not yet known in what cases, and how far effects attributed to superstition, depend upon natural causes. And, therefore, though the practice of such things is to be condemned; yet the consideration of them may afford light, not only in judging criminals, but in a deeper disclosure of nature. Nor should men scruple examining into these things, in order to discover truth: the sun, though it passes through dirty places, yet remains as pure as before. Those narra-

tions, however, which have a tincture of superstition, should be kept separate, and unmixed with others, that are merely natural. But the relations of religious prodigies and miracles, as being either false or supernatural, are unfit to enter into a history of nature.

As for the history of nature wrought or formed, we have some collections of agriculture and manual arts, but commonly with a rejection of familiar and vulgar experiments, which yet are of more service in the interpretation of nature than the uncommon ones: an inquiry into mechanical matters being reputed a dishonor to learning; unless such as appear secrets, rarities, and subtilties. This supercilious arrogance, Plato justly derides in his representation of the dispute between Hippias and Socrates touching beauty. Socrates is represented, in his careless manner, citing first an example of a fair virgin, then a fine horse, then a smooth pot curiously glazed. This last instance moved Hippias' choler, who said, "Were it not for politeness' sake, I would disdain to dispute with any that alleged such low and sordid examples." Whereupon Socrates replied, "You have reason, and it becomes you well, being a man so sprucely attired, and so trim in your shoes."[1] And certainly the truth is, that they are not the highest instances that always afford the securest information; as is not unaptly expressed in the tale so common of the philosopher,[2] who, while he gazed upward to the stars, fell into the water.[3] For had he looked down, he might have discovered the stars in the water; but looking up to heaven, he could not see the water in the stars; for mean and small things often discover great ones, better than great can discover the small; and therefore Aristotle observes, "That the nature of everything is best seen in its smallest portions."[4] Whence he seeks the nature of a commonwealth, first in a family; and so the nature of the world, and the policy thereof must be

[1] Plato, Hipp. Maj. iii. 291.
[2] Thales; see Plato, Theæt. i. 174.
[3] Laertius, "Life of Thales."
[4] Arist. Polit. i. and Phys. i.

sought in mean relations and small portions. The magnetic virtue of iron was not first discovered in bars, but in needles.

But in my judgment the use of mechanical history is of all others, the most fundamental toward such a natural philosophy as shall not vanish in the fume of subtile, sublime, or pleasing speculations; but be operative to the endowment and benefit of human life; as not only suggesting, for the present, many ingenious practices in all trades, by connecting and transferring the observations of one art to the uses of another, when the experience of several arts shall fall under the consideration of one man; but as giving a more true and real illumination with regard to causes and axioms, than has hitherto appeared. For as a man's temper is never well known until he is crossed; in like manner the turns and changes of nature cannot appear so fully, when she is left at her liberty, as in the trials and tortures of art.

We add, that the body of this experimental history should not only be formed from the mechanic arts, but also from the operative and effective part of the liberal sciences, together with numerous practices, not hitherto brought into arts; so that nothing may be omitted which has a tendency to inform the understanding.[5]

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[5] And therefore the history of sophistications, or adulterations and frauds practiced in arts and trades, ought to be inserted, which the learned Morhof adds as a fourth part of this experimental history, though it may seem sufficiently included under the history of arts, as being the secret part essential to every art, and properly called the mystery or craft thereof. Of these impositions, a large number may be readily collected, and serve not only to quicken the understanding and enrich experimental history, but also to contribute to perfect the science of economical prudence. For contraries illustrate each other, and to know the sinister practices of an art gives light to the art itself, as well as puts men upon their guard against being deceived. See Morhof's "Polyhist." tom. ii. p. 128.—*Shaw.*

CHAPTER III

Second Division of Natural History, in relation to its Use and End, into Narrative and Inductive. The most important end of Natural History is to aid in erecting a Body of Philosophy which appertains to Induction. Division of the History of Generations into the History of the Heavens, the History of Meteors, the History of the Earth and Sea, the History of Massive or Collective Bodies, and the History of Species

AS natural history has three parts, so it has two principal uses, and affords—1, a knowledge of the things themselves that are committed to history; and 2, the first matter of philosophy. But the former, though it has its advantages, is of much more inferior consideration than the other, which is a collection of materials for a just and solid induction, whereon philosophy is to be grounded. And in this view, we again divide natural history into narrative and inductive; the latter whereof is wanting. If the natural history extant, though apparently of great bulk and variety, were to be carefully weeded of its fables, antiquities, quotations, frivolous disputes, philology, ornaments, and table-talk, it would shrink to a slender bulk. But besides, a history of this kind is far from what we require, as wanting the two above-mentioned parts of a natural history, viz., præter-generations and arts, on which we lay great stress; and only answers one part in five of the third, viz., that of generations. For the history of generations has five subordinate parts; viz., 1. The celestial bodies, considered in their naked phenomena, stripped of opinions; 2. Meteors, comets,[1] and the re-

[1] Bacon, in the original, classes comets among meteors, yet fifteen hundred years before, Seneca had placed them among planets, predicting that the time would arrive when their seemingly erratic motions would be found to be the result of the same laws. We need hardly remind the reader of the realization of this sage conjecture in the magnificent discoveries of Sir Isaac Newton.—*Ed.*

gions of the air; 3. The earth and sea, as integral parts of the universe, including mountains, rivers, tides, sands, woods, and islands, with a view to natural inquiries rather than cosmography; 4. The elements, or greater assemblages of matter, as I call them—viz., fire, air, water, and earth, and 5. The species of bodies, or more exquisite collections of matter, by us called the smaller assemblages, in which alone the industry of writers has appeared, and that too rather in a luxurious than solid manner; as rather abounding in things superfluous, viz., the representation of plants and animals, etc., than careful observations, which should ever be subjoined to natural history. In fine, all the natural history we have is absolutely unfit for the end we propose, viz., to build philosophy upon; and this both in the manner and matter thereof; hence we set down inductive history as deficient.

CHAPTER IV

Civil History divided into Ecclesiastical and Literary. Deficiency of the latter. The Absence of Precepts for its Compilation

CIVIL history, in general, may be divided into three particular kinds, viz., sacred, civil, and literary; the latter whereof being wanting, the history of the world appears like the statue of Polyphemus, without its eye; the part that best shows the life and spirit of the person. In many particular sciences indeed, as the law, mathematics, and rhetoric, there are extant some short memoirs, and jejune relations of sects, schools, books, authors, and the successions of this kind of sciences, as well as some trivial accounts of the inventors of things and arts; but we say, that a just and universal literary history has not hitherto been published.

The design of this work should be, to relate from the earliest accounts of time—1, what particular kinds of learn-

ing and arts flourished, in what ages, and what parts of the world; 2, their antiquities, progress, and travels on the globe; 3, their decline, disappearance, and restoration. In each art should be observed, 4, its origin and occasion of invention; 5, the manner and form of its delivery; and 6, the means of its introduction, exercise, and establishment. Add to these, 7, the most famous sects and controversies of learned men; 8, the calumnies they suffered, and the praises and honors they received; 9, all along let the best authors and books be noted; with 10, the schools, successions, academies, societies, colleges, orders, and whatever regards the state of learning: but 11, principally let events be throughout coupled with their causes (which is the soul, as it were, of civil history), in relating the nature of countries and people, and 12, their disposition and indisposition to different kinds of learning; 13, the accidents of time, whether favorable or destructive to the sciences; 14, the zeal and mixture of religion; 15, the severity and lenity of laws; 16, the remarkable patronage, efforts, and endowments of illustrious men, for the promotion of learning and the like. All which we would have handled, not in the manner of critics, who barely praise and censure; but historically, or in the way of a naked delivery of facts, with but a sparing use of private judgment.

For the manner of writing this history, we particularly advise the materials of it to be drawn, not only from histories and critical works, but also that the principal books of every century be regularly consulted downward; so far we mean, as that a taste may be had, or a judgment formed, of the subject, style, and method thereof; whence the literary genius of every age may at pleasure be raised, as it were, from the dead.

The use and end of this work is not to derive honor and pomp to learning, nor to gratify an eager curiosity and fondness of knowing and preserving whatever may relate thereto; but chiefly to make learned men wise, in the pru-

dent and sober exercise and administration of learning, and by marking out the virtues and vices of intellectual things, as well as the motions and perturbations of states, to show how the best regulation and government may be thence derived; for as the works of St. Austin or St. Ambrose will not make so wise a divine as a thorough reading of Ecclesiastical History, the same will hold true of learned men with regard to particular books and literary history: for whoever is not supported by examples and the remembrance of things, must always be exposed to contingencies and precipitancy.

CHAPTER V

The Dignity of Civil History and the Obstacles it has to encounter

CIVIL history, particularly so called, is of prime dignity and authority among human writings; as the examples of antiquity, the revolutions of things, the foundations of civil prudence, with the names and reputations of men, are committed to its trust. But it is attended with no less difficulty than dignity; for it is a work of great labor and judgment, to throw the mind back upon things past, and store it with antiquity; diligently to search into, and with fidelity and freedom relate, 1, the commotions of times; 2, the characters of persons; 3, the instability of counsels; 4, the courses of actions; 5, the bottoms of pretences; 6, the secrets of state; and 7, to set all this to view in proper and suitable language: especially as ancient transactions are uncertain, and late ones exposed to danger. Whence such a civil history is attended with numerous defects; the greater part of historians writing little more than empty and vulgar narrations, and such as are really a disgrace to history; while some hastily draw up particular relations and trivial memoirs, some only run over the general heads of actions; and others descend to the minutest

particular, which have no relation to the principal action. These, in compliance with their genius, boldly invent many of the things they write; while those stamp the image of their own affections upon what they deliver; thus preserving fidelity to their party, but not to things themselves. Some are constantly inculcating politics, in which they take most pleasure, and seek all occasions of exhibiting themselves, thus childishly interrupting the thread of their history; while others are too tedious, and show but little judgment in the prolixity of their speeches, harangues, and accounts of actions; so that, in short, nothing is so seldom found among the writings of men as true and perfect civil history.

CHAPTER VI

Division of Civil History into Memoirs, Antiquities, and Perfect History

THIS civil history is of three kinds, and bears resemblance to three kinds of pictures; viz., the unfinished, the finished, and the defaced: thus civil history, which is the picture of times and things, appears in memoirs, just history, and antiquities; but memoirs are history begun, or the first strokes and materials of it; and antiquities are history defaced, or remnants that have escaped the shipwreck of time.

Memoirs, or memorials, are of two kinds; whereof the one may be termed commentaries, the other registers. In commentaries are set down naked events and actions in sequence, without the motives, designs, counsels, speeches, pretexts, occasions, etc.; for such is the true nature of a commentary, though Cæsar, in modesty mixed with greatness, called the best history in the world a commentary.

Registers are of two kinds; as either containing the titles of things and persons in order of time, by way of calendars and chronicles, or else after the manner of journals, pre-

serving the edicts of princes, decrees of council, judicial proceedings, declarations, letters of state, and public orations, without continuing the thread of the narration.

Antiquities are the wrecks of history, wherein the memory of things is almost lost; or such particulars as industrious persons, with exact and scrupulous diligence, can any way collect from genealogies, calendars, titles, inscriptions, monuments, coins, names, etymologies, proverbs, traditions, archives, instruments, fragments of public and private history, scattered passages of books no way historical, etc.; by which means something is recovered from the deluge of time. This is a laborious work; yet acceptable to mankind, as carrying with it a kind of reverential awe, and deserves to come in the place of those fabulous and fictitious origins of nations we abound with; though it has the less authority, as but few have examined and exercised a liberty of thought about it.

In these kinds of imperfect history, no deficiency need be noted, they being of their own nature imperfect: but epitomes of history are the corruption and moths that have fretted and corroded many sound and excellent bodies of history, and reduced them to base and unprofitable dregs; whence all men of sound judgment declare the use of them ought to be banished.

CHAPTER VII

Division of History into Chronicles, Biographies, and Perfect Relations. The Development of their parts

JUST history is of three kinds, with regard to the three objects it designs to represent; which are either a portion of time, a memorable person, or an illustrious action. The first kind we call writing annals or chronicles; the second, lives; and the third, narratives or relations. Chronicles share the greatest esteem and reputation, but lives excel in advantage and use, as relations do in truth

and sincerity. For chronicles represent only grand public actions, and external shows and appearances to the people, and drop the smaller passages and motions of men and things. But as the divine artificer hangs the greatest weight upon the smallest strings, so such histories rather show the pomp of affairs, than their true and inward springs. And though it intersperses counsel, yet delighting in grandeur, it attributes more gravity and prudence to human actions, than really appears in them; so that satire might be a truer picture of human life, than certain histories of this kind: whereas lives, if wrote with care and judgment, proposing to represent a person, in whom actions, both great and small, public and private, are blended together, must of necessity give a more genuine, native, and lively representation, and such as is fitter for imitation.

Particular relations of actions, as of the Peloponnesian war, and the expedition of Cyrus, may likewise be made with greater truth and exactness than histories of times; as their subject is more level to the inquiry and capacity of the writer, while they who undertake the history of any large portion of time must need meet with blanks and empty spaces, which they generally fill up out of their own invention. This exception, however, must be made to the sincerity of relations, that, if they be wrote near the times of the actions themselves, they are, in that case, to be greatly suspected of partiality or prejudice. But as it is usual for opposite parties to publish relations of the same transactions, they, by this means, open the way to truth, which lies between the two extremes: so that, after the heat of contention is allayed, a good and wise historian may hence be furnished with matter for a more perfect history.

As to the deficiencies in these three kinds of history, doubtless many particular transactions have been left unrecorded, to the great prejudice, in point of honor and glory, of those kingdoms and states wherein they passed. But to omit other nations, we have particular reason to complain to your Majesty of the imperfection of the present history

of England, in the main continuance of it, and the partiality and obliquity of that of Scotland, in the most copious and recent account that has been left us. As this island of Great Britain will now, as one united monarchy, descend to future ages, we cannot but deem it a work alike honorable to your Majesty, and grateful to posterity, that exploits were collected in one history, in the style of the ancient Testament, which hands down the story of the ten tribes and the two tribes as twins together. If the greatness of the undertaking, however, should prove any obstacle to its perfect execution, a shorter period of time, fraught with the greatest interest, occurs from the junction of the Roses to the union of the two kingdoms—a space of time which to me appears to contain a crowd of more memorable events than ever occurred in any hereditary monarchy of similar duration. For it commences with the conjoint adoption of a crown by arms, and title, an entry by battle, and a marriage settlement. The times which follow, partaking of the nature of such beginnings, like waters after a tempest, full of workings and swellings, though without boisterous storms, being well navigated by the wisdom of the pilot,[1] one of the most able of his predecessors. Then succeeded the reign of a king, whose policy, though rather actuated by passion than counsel, exercised great influence upon the courts of Europe, balancing and variably inclining their various interests; in whose time, also, began that great change of religion, an action seldom brought on the stage. Then the reign of a minor. Then an attempt at usurpation, though it was but as a "febris ephemera": then the reign of a queen, matched with a foreigner: then the reign of a queen, solitary and unmarried. And now, as a close, the glorious and auspicious event of the union of an island, divided from the rest of the world: so that we may say the old oracle which gave rest to Æneas, "antiquam exquirite matrem,"[2] is fulfilled in the union of England and Scotland

[1] Henry VII.

[2] Æn. iii. 96.

under one sceptre. Thus as massive bodies, drawn aside from their course, experience certain waverings and trepidations before they fix and settle, so this monarchy, before it was to settle in your Majesty and your heirs, in whom I hope it is established forever, seems by the providence of God to have undergone these mutations and deflections as a prelude to stability.

With regard to lives, we cannot but wonder that our own times have so little value for what they enjoy, as not more frequently to write the lives of eminent men. For though kings, princes, and great personages are few, yet there are many other excellent men who deserve better than vague reports and barren elogies. Here the fancy of a late poet, who has improved an ancient fiction, is not inapplicable. He feigns that at the end of the thread of every man's life, there hung a medal, on which the name of the deceased is stamped; and that Time, waiting upon the shears of the fatal sister, as soon as the thread was cut, caught the medals, and threw them out of his bosom into the river Lethe. He also represented many birds flying over its banks, who caught the medals in their beaks, and after carrying them about for a certain time, allowed them to fall in the river. Among these birds were a few swans, who used, if they caught a medal, to carry it to a certain temple consecrated to immortality. Such swans, however, are rare in our age. And although many, more mortal in their affections than their bodies, esteem the desire of fame and memory but a vanity, and despise praise, while they do nothing that is praiseworthy—"animos nil magnæ laudis egentes";[3] yet their philosophy springs from the root, "non prius laudes contempsimus quam laudanda facere desivimus"; and does not alter Solomon's judgment—"the memory of the just shall be with praises; but the name of the wicked shall rot";[4] the one flourishing, while the other consumes or turns to corruption. So in that laudable way of speaking

[3] Æn. v. 751.

[4] Prov. x. 7.

of the dead, "of happy memory! of pious memory!" etc., we seem to acknowledge, with Cicero and Demosthenes, "that a good name is the proper inheritance of the deceased";[5] which inheritance is lying waste in our time, and deserves to be noticed as a deficiency.

In the business of relations it is, also, to be wished that greater diligence were employed; for there is no signal action, but has some good pen to describe it. But very few being qualified to write a complete history, suitable to its dignity (a thing wherein so many have failed), if memorable acts were but tolerably related as they pass, this might lay the foundations, and afford materials for a complete history of times, when a writer should arise equal to the work.

CHAPTER VIII

Division of the History of Times into Universal and Particular. The Advantages and Disadvantages of both

HISTORY of times is either general or particular, as it relates the transactions of the whole world, or of a certain kingdom or nation. And there have been those who would seem to give us the history of the world from its origin; but, in reality, offer only a rude collection of things, and certain short narratives instead of a history; while others have nobly, and to good advantage, endeavored to describe, as in a just history, the memorable things, which in their time happened over all the globe. For human affairs are not so far divided by empires and countries, but that in many cases they still preserve a connection: whence it is proper enough to view, as in one picture, the fates of an age. And such a general history as this may frequently contain particular relations, which, though of value, might otherwise either be

[5] Demosth. adv. Lept. 488.

lost, or never again reprinted: at least, the heads of such accounts may be thus preserved. But upon mature consideration, the laws of just history appear so severe as scarcely to be observed in so large a field of matter, whence the bulkiness of history should rather be retrenched than enlarged; otherwise, he who has such variety of matter everywhere to collect, if he preserve not constantly the strictest watch upon his informations, will be apt to take up with rumors and popular reports, and work such kind of superficial matter into his history. And, then, to retrench the whole, he will be obliged to pass over many things otherwise worthy of relation, and often to contract and shorten his style; wherein there lies no small danger of frequently cutting off useful narrations, in order to oblige mankind in their favorite way of compendium; whence such accounts, which might otherwise live of themselves, may come to be utterly lost.

CHAPTER IX

Second Division of the History of Times into Annals and Journals

HISTORY of times is likewise divisible into annals and journals, according to the observation of Tacitus, where, mentioning the magnificence of certain structures, he adds, "It was found suitable to the Roman dignity that illustrious things should be committed to annals, but such as these to the public journals of the city";[1] thus referring what related to the state of the commonwealth to annals, and smaller matters to journals. And so there should be a kind of heraldry in regulating the dignities of books as well as persons: for as nothing takes more from the dignity of a state than confusion of orders and degrees, so it greatly takes from the authority of history to intermix

[1] Annals, xiii. 31.

matters of triumph, ceremony, and novelty, with matters of state. And it were to be wished that this distinction prevailed; but in our times journals are only used at sea and in military expeditions, whereas among the ancients it was a regal honor to have the daily acts of the palace recorded, as we see in the case of Ahasuerus, king of Persia.[2] And the journals of Alexander the Great contained even trivial matters;[3] yet journals are not destined for trivial things alone, as annals are for serious ones, but contain all things promiscuously, whether of greater or of less concern.

CHAPTER X

Second Division of Special Civil History into Pure and Mixed

THE last division of civil history is into pure and mixed. Of the mixed there are two eminent kinds —the one principally civil, and the other principally natural: for a kind of writing has been introduced that does not give particular narrations in the continued thread of a history, but where the writer collects and culls them, with choice, out of an author, then reviewing and as it were ruminating upon them, takes occasion to treat of political subjects; and this kind of ruminated history we highly esteem, provided the writers keep close to it professedly, for it is both unseasonable and irksome to have an author profess he will write a proper history, yet at every turn introduce politics, and thereby break the thread of his narration. All wise history is indeed pregnant with political rules and precepts, but the writer is not to take all opportunities of delivering himself of them.

Cosmographical history is also mixed many ways—as taking the descriptions of countries, their situations and

[2] Esther vi. 1.
[3] Plutarch's Symposium, i. qu. 6 and Alex. Life, xxiii. 76.

fruits, from natural history; the accounts of cities, governments, and manners, from civil history; the climates and astronomical phenomena, from mathematics: in which kind of history the present age seems to excel, as having a full view of the world in this light. The ancients had some knowledge of the zones and antipodes—

> "Nosque ubi primus equis oriens afflavit anhelis,
> Illic sera rubens accendit lumina vesper" [1]—

though rather by abstract demonstration than fact. But that little vessels, like the celestial bodies, should sail round the whole globe, is the happiness of our age. These times, moreover, may justly use not only plus ultra where the ancients used non plus ultra, but also imitabile fulmen where the ancients said non imitabile fulmen—

> "Demens qui nimbos et non imitabile fulmen." [2]

This improvement of navigation may give us great hopes of extending and improving the sciences, especially as it seems agreeable to the Divine will that they should be coeval. Thus the prophet Daniel foretells, that "Many shall go to and fro on the earth, and knowledge shall be increased," [3] as if the openness and thorough passage of the world and the increase of knowledge were allotted to the same age, which indeed we find already true in part: for the learning of these times scarce yields to the former periods or returns of learning—the one among the Greeks and the other among the Romans, and in many particulars far exceeds them.

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[1] Virgil, Georgics, i. 251. [2] Virgil, Æneid, vi. 590. [3] Dan. xii. 4.

CHAPTER XI

Ecclesiastical History divided into the General History of the Church, History of Prophecy, and History of Providence

ECCLESIASTICAL history in general has nearly the same divisions with civil history: thus there are ecclesiastical chronicles, lives of the fathers, accounts of synods, and other ecclesiastical matters; but in propriety it may be further divided—1. Into the general history of the Church; 2. The history of prophecy; and, 3. The history of providence. The first describes the times of the Church militant, whether fluctuating, as the ark of Noah; movable, as the ark in the wilderness; or at rest, as the ark in the temple; that is, in the states of persecution, migration, and peace. And in this part there is a redundancy rather than a deficiency, but it were to be wished the goodness and sincerity of it were equal to the bulk.

The second part, viz., the history of prophecy, consists of two relatives—the prophecy and the accomplishment; whence the nature of it requires, that every Scripture prophecy be compared with the event, through all the ages of the world, for the better confirmation of the faith and the better information of the Church with regard to the interpretation of prophecies not yet fulfilled. But here we must allow that latitude which is peculiar and familiar to divine prophecies, which have their completion not only at stated times, but in succession, as participating of the nature of their author, "with whom a thousand years are but as one day,"[1] and therefore are not fulfilled punctually at once, but have a growing accomplishment through many ages, though the height or fulness of them may refer to a

[1] Psalm lxxxix. 4.

single age or moment. And this is a work which I find deficient; but it should either be undertaken with wisdom, sobriety, and reverence, or not at all.

The third part—the history of providence—has been touched by some pious pens, but not without a mixture of party. This history is employed in observing that Divine agreement which there sometimes is between the revealed and secret will of God. For although the counsels and judgments of God are so secret as to be absolutely unsearchable to man,[2] yet the Divine goodness has sometimes thought fit, for the confirmation of his own people, and the confutation of those who are as without God in the world, to write them in such capital letters, as they who run may read them.[3] Such are the remarkable events and examples of God's judgments, though late and unexpected, sudden and unhoped for deliverances and blessings, Divine counsels dark and doubtful at length opening and explaining themselves, etc. All which have not only a power to confirm the minds of the faithful, but to awaken and convince the consciences of the wicked.

CHAPTER XII

The Appendix of History embraces the Words of Men, as the Body of History includes their Exploits. Its Division into Speeches, Letters, and Apothegms

AND not only the actions of mankind, but also their sayings, ought to be preserved, and may doubtless be sometimes inserted in history, so far as they decently serve to illustrate the narration of facts; but books of orations, epistles, and apothegms, are the proper repositories of human discourse. The speeches of wise men upon matter of business, weighty causes, or difficult points, are of

[2] I. Cor. ii. [3] Epis. to the Ephesians ii. and Habak. ii.

great use, not only for eloquence, but for the knowledge of things themselves. But the letters of wise men upon serious affairs are yet more serviceable in points of civil prudence, as of all human speech nothing is more solid or excellent than such epistles, for they contain more of natural sense than orations, and more ripeness than occasional discourses: so letters of state affairs, written in the order of time by those that manage them, with their answers, afford the best materials for civil history.

Nor do apothegms only serve for ornament and delight, but also for action and civil use, as being the edge-tools of speech—

"Secures aut mucrones verborum,"[1]

which cut and penetrate the knots of business and affairs; for occasions have their revolutions, and what has once been advantageously used may be so again, either as an old thing or a new one. Nor can the usefulness of these sayings in civil affairs be questioned, when Cæsar himself wrote a book upon the subject, which we wish were extant; for all those we have yet seen of the kind appear to be collected with little choice and judgment.

CHAPTER XIII

The Second leading Branch of Learning—Poetry. Its Division into Narrative, Dramatic, and Parabolic. Three Examples of the latter species detailed

POETRY is a kind of learning generally confined to the measure of words, but otherwise extremely licentious, and truly belonging to the imagination, which, being unrestrained by laws, may make what unnatural mixtures and separations it pleases. It is taken in two senses, or with respect to words and matter. The first is but a char-

[1] Cicero's Epis. Fam. ix.

acter of style and a certain form of speech not relating to the subject, for a true narration may be delivered in verse and a feigned one in prose; but the second is a capital part of learning, and no other than feigned history. And here, as in our divisions, we endeavor to find and trace the true sources of learning, and this frequently without giving way to custom or the established order—we shall take no particular notice of satire, elegy, epigram, ode, etc., but turn them over to philosophy and the arts of speech, and under the name of poetry treat nothing more than imaginary history.

The justest division of poetry, except what it shares in common with history (which has its feigned chronicles, feigned lives, and feigned relations), is—1. Into narrative; 2. Dramatic; and 3. Allegorical. Narrative poetry is such an exact imitation of history as to deceive, did it not often carry things beyond probability. Dramatic poetry is a kind of visible history, giving the images of things as if they were present, while history represents them as past. But allegorical poetry is history with its type, which represents intellectual things to the senses.

Narrative poetry, otherwise called heroic poetry, seems, with regard to its matter, not the versification, raised upon a noble foundation, as having a principal regard to the dignity of human nature. For as the active world is inferior to the rational soul, so poetry gives that to mankind which history denies, and in some measure satisfies the mind with shadows when it cannot enjoy the substance. For, upon a narrow inspection, poetry strongly shows that a greater grandeur of things, a more perfect order, and a more beautiful variety is pleasing to the mind than can anywhere be found in nature after the fall. So that, as the actions and events, which are the subjects of true history, have not that grandeur which satisfies the mind, poetry steps in and feigns more heroical actions. And as real history gives us not the success of things according to the deserts of virtue and vice, poetry corrects it, and presents us with the fates and for-

tunes of persons rewarded or punished according to merit. And as real history disgusts us with a familiar and constant similitude of things, poetry relieves us by unexpected turns and changes, and thus not only delights, but inculcates morality and nobleness of soul. Whence it may be justly esteemed of a Divine nature, as it raises the mind, by accommodating the images of things to our desires, and not, like history and reason, subjecting the mind to things. And by these its charms, and congruity to the mind, with the assistance also of music, which conveys it the sweeter, it makes its own way, so as to have been in high esteem in the most ignorant ages, and among the most barbarous people, while other kinds of learning were utterly excluded.

Dramatic poetry, which has the theatre for its world, would be of excellent use if it were sound; for the discipline and corruption of the theatre is of very great consequence. And the corruptions of this kind are numerous in our times, but the regulation quite neglected. The action of the theatre, though modern states esteem it but ludicrous, unless it be satirical and biting, was carefully watched by the ancients, that it might improve mankind in virtue: and indeed many wise men and great philosophers have thought it to the mind as the bow to the fiddle; and certain it is, though a great secret in nature, that the minds of men in company are more open to affections and impressions than when alone.

But allegorical poetry excels the others, and appears a solemn, sacred thing, which religion itself generally makes use of, to preserve an intercourse between divine and human things; yet this, also, is corrupted by a levity and indulgence of genius toward allegory. Its use is ambiguous, and made to serve contrary purposes; for it envelops as well as illustrates—the first seeming to endeavor at an art of concealment, and the other at a method of instructing, much used by the ancients. For when the discoveries and conclusions of reason, though now common, were new,

and first known, the human capacity could scarce admit them in their subtile state, or till they were brought nearer to sense, by such kind of imagery and examples; whence ancient times are full of their fables, their allegories, and their similes. From this source arise the symbol of Pythagoras, the enigmas of Sphinx, and the fables of Æsop. Nay, the apothegms of the ancient sages were usually demonstrated by similitudes. And as hieroglyphics preceded letters, so parables preceded arguments; and the force of parables ever was and will be great, as being clearer than arguments, and more apposite than real examples.

The other use of allegorical poetry is to envelop things, whose dignity deserves a veil; as when the secrets and mysteries of religion, policy, and philosophy, are wrapped up in fables and parables. But though some may doubt whether there be any mystical sense concealed in the ancient fables of the poets, we cannot but think there is a latent mystery intended in some of them: for we do not, therefore, judge contemptibly of them, because they are commonly left to children and grammarians; but as the writings that relate these fables are, next to the sacred ones, the most ancient, and the fables themselves much older still, being not delivered as the inventions of the writers, but as things before believed and received, they appear like a soft whisper from the traditions of more ancient nations, conveyed through the flutes of the Grecians. But all hitherto attempted toward the interpretation of these parables proving unsatisfactory to us, as having proceeded from men of but commonplace learning, we set down the philosophy of ancient fables as the only deficiency in poetry. But lest any person should imagine that any of these deficiencies are rather notional than real, and that we, like augurs, only measure countries in our mind, and know not how to invade them, we will proceed to subjoin examples of the work we recommend. These shall be three in number—one taken from natural philosophy, one from politics, and another from morals.

PAN, OR NATURE[1]

Explained of Natural Philosophy

"THE ancients have, with great exactness, delineated universal nature under the person of Pan. They leave his origin doubtful: some asserting him the son of Mercury, and others the common offspring of all Penelope's suitors. The latter supposition doubtless occasioned some later writers to entitle this ancient fable, Penelope—a thing frequently practiced when the early relations are applied to more modern characters and persons, though sometimes with great absurdity and ignorance, as in the present case: for Pan was one of the ancientest gods, and long before the time of Ulysses: besides, Penelope was venerated by antiquity for her matronal chastity. A third sort will have him the issue of Jupiter and Hybris, that is, Reproach. But whatever his origin was, the Destinies are allowed his sisters.

"He is described by antiquity with pyramidal horns reaching up to heaven, a rough and shaggy body, a very long beard, of a biform figure, human above, half-brute below, ending in goat's feet. His arms, or ensigns of power, are a pipe in his left hand, composed of seven reeds; in his right a crook; and he wore for his mantle a leopard's skin.

"His attributes and titles were, the god of hunters, shepherds, and all the rural inhabitants; president of the mountains, and after Mercury the next messenger of the gods. He was also held the leader and ruler of the Nymphs, who continually danced and frisked about him, attended with the Satyrs, and their elders the Sileni. He had also the power of striking terrors, especially such as were vain and superstitious; whence they came to be called panic terrors.[2]

"Few actions are recorded of him; only a principal one is, that he challenged Cupid at wrestling, and was worsted. He also catched the giant Typhon in a net, and held him fast. They relate further of him, that when Ceres growing

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[1] Hymn to Pan, Hom. Odyss. *ver. fin.* [2] Cicero, Epis. to Atticus, 5.

disconsolate for the rape of Proserpine, hid herself, and all the gods took the utmost pains to find her, by going out different ways for that purpose, Pan only had the good fortune to meet her as he was hunting, and discovered her to the rest. He likewise had the assurance to rival Apollo in music; and in the judgment of Midas was preferred: but the judge had, though with great privacy and secrecy, a pair of ass's ears fastened on him for his sentence.[3]

"There is very little said of his amours, which may seem strange among such a multitude of gods, so profusely amorous. He is only reported to have been very fond of Echo, who was also esteemed his wife; and one nymph more called Syrinx, with the love of whom Cupid inflamed him for his insolent challenge; so he is reported, once, to have solicited the moon to accompany him apart into the deep woods.

"Lastly, Pan had no descendant, which also is a wonder, when the male gods were so extremely prolific; only he was the reputed father of a servant girl, called Iambe, who used to divert strangers with her ridiculous and prattling stories."

This fable is, perhaps, the noblest of all antiquity, and pregnant with the mysteries and secrets of nature. Pan, as the name imports, represents the universe, about whose origin there are two opinions; viz., that it either sprung from Mercury, that is, the Divine Word, according to the Scriptures and philosophical divines; or from the confused seeds of things. For some of the philosophers[4] held that the seeds and elements of nature were infinite in their substance; whence arose the opinion of homogeneous primary parts, which Anaxagoras either invented or propagated. Others more accurately maintain that the variety of nature can equally spring from seeds, certain and definite in substance, but only diversified in form and figure, and attribute the remaining varieties to the interior organization of the seeds themselves. From this source the doctrine of atoms is derived, which Democritus maintained, and Leucippus

[3] Ovid, Metamorphoses, ii.

[4] Anaxagoras, in Diog. Laert.

found out. But others teach only one principle of nature—Thales, water; Anaximenes, air; Heraclitus, fire[5]—and defined this principle, which is one in act, to be various and dispensable in powers, and involving the seeds of all natural essences. They who introduced—as Aristotle and Plato[6]—primordial matter, every way disarranged, shapeless, and indifferent to any form, approached nearer to a resemblance of the figure of the parable. For they conceived matter as a courtesan, and the forms as suitors; so that the whole dispute comes to these two points: viz., either that nature proceeds from Mercury, or from Penelope and all her suitors.[7]

The third origin of Pan seems borrowed by the Greeks from the Hebrew mysteries, either by means of the Egyptians, or otherwise; for it relates to the state of the world, not in its first creation, but as made subject to death and corruption after the fall: and in this state it was and remains the offspring of God and Sin, or Jupiter and Reproach. And, therefore, these three several accounts of Pan's birth may seem true, if duly distinguished in respect of things and times. For this Pan, or the universal nature of things, which we view and contemplate, had its origin from the Divine Word, and confused matter, first created by God himself, with the subsequent introduction of sin, and consequently corruption.

The Destinies are justly made Pan's sisters; for the rise, preservation, and dissolution of things; their depressions, exaltations, processes, triumphs, and whatever else can be ascribed to individual natures, are called fates and destinies,

[5] This difference between the three philosophies is nothing else, as Hippocrates has observed (De Dicta, lib. i.) than a mere dispute about words. For if there be but one single element or substance identical in all its parts, as the primary mover of things, it follows, as this substance is equally indifferent to the forms of each of the three elements, that one name may attach to it quite as philosophically as the other. In strict language, such a substance could not be defined by any of these terms: as fire, air, or water, appear only as its accidental qualities, and it is not allowable to define anything whose essential properties remain undiscovered.—*Ed.*

[6] Plato's Timæus.

[7] Bacon directs his interpretation here to the confused mixture of things, as sung by Virgil, Ecl. vi. 31.

but generally pass unnoticed, except indeed in striking examples, as in men, cities, and nations. Pan, or the nature of things, is the cause of these several changes and effects, and in regard to individuals as the chain of natural causes, and the thread of the Destinies, links them together. The ancients likewise feigned that Pan ever lived in the open air; but the Parcæ or the Destinies in a large subterraneous cave, from which they emerged with inconceivable swiftness, to operate on mankind, because the common face of the universe is open; but the individual fates, dark, swift, and sudden. The analogy will also correspond if fate be enlarged above its ordinary acceptation as applicable to inanimate nature. Since, also, in that order nothing passes without a cause, and nothing is so absolutely great as to be independent, nature holding in her lap and bosom every event either small or great, and disclosing them in due season, it is, therefore, no marvel that the Parcæ are introduced as the sisters of Pan: for Fortune is the daughter of the foolish vulgar, and finds favor only with the more unsound philosophers. And the words of Epicurus savor less of dotage than profanity—"Præstare credere fabulam Deorum quam fatum asserere[8]—as if anything in the frame of nature could, like an island, stand apart from the rest. But Epicurus framed his natural philosophy on his moral, and would hear of no opinion which might press or sting his conscience, or in any way trouble that euthymia or tranquillity of mind which he had received from Democritus. Hence, being more indulgent to his own fancies than patient of truth, he fairly cast off the yoke, and abandoned as well the necessity of fate as the fear of the gods.

Horns are given him broad at the roots, but narrow and sharp atop, because the nature of all things seems pyramidal: for individuals are infinite; but being collected into a variety of species, they rise up into kinds; and these again ascend, and are contracted into generals, till at length

[8] Seneca's Epistles.

nature may seem collected to a point, which is signified by the pyramidal figure of Pan's horns. And no wonder if Pan's horns reach to the heavens, since the sublimities of nature, or abstract ideas, reach in a manner to things divine. Thus Homer's famous chain of natural causes is tied to the foot of Jupiter's chair;[9] and indeed no one can treat of metaphysics, or of the internal and immutable in nature, without rushing at once into natural theology.

Pan's body, or the body of nature, is, with great propriety and elegance, painted shaggy and hairy, as representing the rays of things: for rays are as the hair or fleece of nature, and more or less worn by all bodies. This evidently appears in vision, and in all effects or operations at a distance: for whatever operates thus may be properly said to emit rays.[10] But particularly the beard of Pan is exceeding long, because the rays of the celestial bodies penetrate, and act to a prodigious distance, and have descended into the interior of the earth so far as to change its surface;[11] and the sun himself, when clouded on its upper part, appears to the eye bearded.

Again, the body of nature is justly described biform, because of the difference between its superior and inferior parts; as the former, for their beauty, regularity of motion, and influence over the earth, may be properly represented by the human figure, and the latter, because of their disorder, irregularity, and subjection to the celestial bodies, are by the brutal. This biform figure also represents the participation of one species with another, for there appear to be no simple natures, but all participate or consist of

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[9] Iliad, ix.

[10] This is always supposed to be the case in vision, the mathematical demonstrations in optics proceeding invariably upon the assumption of this phenomenon.—*Ed.*

[11] Bacon had no idea of a central fire, and how much it has contributed to work these interior revolutions. The thermometer of Drebbel, which he describes in the second part of the "Novum Organum," has shown that down to a certain depth beneath the earth's surface the temperature (in all climates) undergoes no change, and beyond that limit, that the heat augments in proportion to the descent.—*Ed.*

two: thus man has somewhat of the brute, the brute somewhat of the plant, the plant somewhat of the mineral; so that all natural bodies have really two faces, or consist of a superior and an inferior species.

There lies a curious allegory in the making of Pan goat-footed, on account of the motion of ascent, which the terrestrial bodies have toward the air and heavens: for the goat is a clambering creature, that delights in climbing up rocks and precipices; and in the same manner the matters destined to this lower globe strongly affect to rise upward, as appears from the clouds and meteors. And it was not without reason that Gilbert, who has written a painful and elaborate work upon the magnet, doubted whether ponderous bodies, after being separated a long distance from the earth, do not lose their gravitating tendency toward it.

Pan's arms, or the ensigns he bears in his hands, are of two kinds; the one an emblem of harmony, the other of empire. His pipe, composed of seven reeds, plainly denotes the consent and harmony, or the concords and discords of things, produced by the motion of the seven planets. If there be other planets yet concealed, or any greater mutations in the heavens, as in superlunary comets, they seem like pipes either altogether united or silent for a time, because their influence either does not reach so low as us, or leaves uninterrupted the harmony of the seven pipes of Pan. His crook also contains a fine representation of the ways of nature, which are partly straight and partly crooked: thus the staff, having an extraordinary bend toward the top, denotes that the works of Divine Providence are generally brought about by remote means, or in a circuit, as if somewhat else were intended, rather than the effect produced; as in the sending of Joseph into Egypt. So, likewise, in human government, they who sit at the helm manage and wind the people more successfully by pretext and oblique courses than they could by such as are direct and straight; so that in effect all sceptres are crooked on the top. Nay, in things strictly natural you may sooner

deceive nature than force her, so improper and self-convicting are open, direct endeavors, whereas an oblique and insinuating way gently glides along, and secretly accomplishes the purpose.

Pan's mantle, or clothing, is with great ingenuity made of a leopard's skin, because of the spots it has: for, in like manner, the heavens are sprinkled with stars, the sea with islands, the earth with flowers, and almost each particular thing is variegated, or wears a mottled coat.

The office of Pan could not be more livelily expressed than by making him the god of hunters: for every natural action, every motion and process, is no other than a chase; thus arts and sciences hunt out their works, and human schemes and counsels their several ends, and all living creatures either hunt out their aliment, pursue their prey, or seek their pleasures, and this in a skilful and sagacious manner.[12] He is also styled the god of the rural inhabitants, because men in this situation live more according to nature than they do in cities and courts, where nature is so corrupted with effeminate arts, that the saying of the poet may be verified:

"——pars minima est ipsa puella sui." [13]

He is likewise particularly styled president of the mountains, because in mountains and lofty places the nature of things lies more open and exposed to the eye and the understanding.

In his being called the messenger of the gods, next after Mercury, lies a divine allegory; as, next after the word of God, the image of the world is the herald of the divine power and wisdom, according to the expression of the Psalmist: "The heavens declare the glory of God, and the firmament showeth his handiwork."[14]

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[12] "Torva leæna lupum sequitur, lupus ipse capellam:
Florentem cytisum sequitur lasciva capella."
Virgil, Ecl. ii. 63.

[13] Ovid, Rem. Amoris, v. 343. Mart. Epist.

[14] Psalm xix. 1.

Pan is delighted with the company of the Nymphs: that is, the souls of all living creatures are the delight of the world, and he is properly called their governor, because each of them follows its own nature as a leader, and all dance about their own respective rings with infinite variety and never-ceasing motion. Hence one of the moderns has ingeniously reduced all the power of the soul to motion, noting the precipitancy of some of the ancients, who, fixing their thoughts prematurely on memory, imagination, and reason, have neglected the cogitative faculty, which, however, plays the chief rôle in the work of conception. For he that remembers, cogitates, as likewise he who fancies or reasons; so that the soul of man in all her moods dances to the musical airs of the cogitations, which is that rebounding of the Nymphs. And with these continually join the Satyrs and Sileni, that is, youth and age; for all things have a kind of young, cheerful, and dancing time; and again their time of slowness, tottering, and creeping. And whoever, in a true light, considers the motions and endeavors of both these ages, like another Democritus, will perhaps find them as odd and strange as the gesticulations and antic motions of the Satyrs and Sileni.

The power he had of striking terrors contains a very sensible doctrine, for nature has implanted fear in all living creatures, as well to keep them from risking their lives as to guard against injuries and violence; and yet this nature or passion keeps not its bounds, but with just and profitable fears always mixes such as are vain and senseless; so that all things, if we could see their insides, would appear full of panic terrors. Nor is this superstition confined to the vulgar, but sometimes breaks out in wise men. As Epicurus, "Non Deos vulgi negare profanum; sed vulgi opiniones Diis applicare profanum." [15]

The presumption of Pan in challenging Cupid to the conflict, denotes that matter has an appetite and tendency

[15] Laertius's Life of Epicurus.

to a dissolution of the world, and falling back to its first chaos again, unless this depravity and inclination were restrained and subdued by a more powerful concord and agreement of things, properly expressed by love or Cupid; it is therefore well for mankind, and the state of all things, that Pan was thrown and conquered in the struggle.

His catching and detaining Typhon in the net receives a similar explanation; for whatever vast and unusual swells, which the word Typhon signifies, may sometimes be raised in nature, as in the sea, the clouds, the earth, or the like; yet nature catches, entangles, and holds all such outrages and insurrections in her inextricable net, wove as it were of adamant.

That part of the fable which attributes the discovery of lost Ceres to Pan, while he was hunting, a happiness denied the other gods, though they diligently and expressly sought her, contains an exceeding just and prudent admonition; viz., that we are not to expect the discovery of things useful in common life, as that of corn, denoted by Ceres, from abstract philosophies, as if these were the gods of the first order—no, not though we used our utmost endeavors this way—but only from Pan, that is, a sagacious experience and general knowledge of nature, which is often found, even by accident, to stumble upon such discoveries, while the pursuit was directed another way.

The event of his contending with Apollo in music, affords us a useful instruction, that may help to humble the human reason and judgment, which is too apt to boast and glory in itself. There seem to be two kinds of harmony; the one of Divine Providence, the other of human reason: but the government of the world, the administration of its affairs, and the more secret divine judgments, sound harsh and dissonant to human ears or human judgment; and though this ignorance be justly rewarded with ass's ears, yet they are put on and worn, not openly, but with great secrecy; nor is the deformity of the thing seen or observed by the vulgar.

We must not find it strange if no amours are related of Pan, besides his marriage with Echo; for nature enjoys itself, and in itself all other things: he that loves, desires enjoyment; but in profusion there is no room for desire; and therefore Pan, remaining content with himself, had no passion, unless it be for discourse, which is well shadowed out by Echo, or talk; or when it is more accurate, by Syrinx, or writing.[16] But Echo makes a most excellent wife for Pan, as being no other than genuine philosophy, which faithfully repeats his words, or only transcribes exactly as nature dictates; thus representing the true image and reflection of the world, without adding a tittle. The calling the moon aside into a deeply imbrowned wood, seems to refer to the convention between the sense and spiritual things. For the ear of Endymion and Pan are different, the moon of her own accord in the latter case stooping down from her sphere as Endymion lay asleep, intimating that divine illuminations oft glide gently into the understanding, cast asleep and withdrawn from the senses. But if they be called by sense, representing Pan, they afford no other light than that

> "Quale, per incertam lunam, sub luce maligná,
> Est iter in sylvis." [17]

It tends also to the support and perfection of Pan or nature, to be without offspring; for the world generates in its parts, and not in the way of a whole, as wanting a body external to itself wherewith to generate.

Lastly, for the supposed or spurious prattling daughter of Pan, it is an excellent addition to the fable, and aptly represents the talkative philosophies that have at all times been stirring, and filled the world with idle tales; being ever barren, empty, and servile, though sometimes indeed diverting and entertaining, and sometimes again troublesome and importunate.

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[16] Syrinx signifying a reed, or the ancient pen.

[17] Æneid, vi. 270.

PERSEUS [18] OR WAR

Explained of the Preparation and Conduct necessary to War

"THE fable relates, that Perseus was despatched from the east by Pallas, to cut off Medusa's head, who had committed great ravage upon the people of the west; for this Medusa was so dire a monster, as to turn into stone all those who but looked upon her. She was a Gorgon, and the only mortal one of the three; the other two being invulnerable. Perseus, therefore, preparing himself for this grand enterprise, had presents made him from three of the gods: Mercury gave him wings for his heels; Pluto, a helmet; and Pallas, a shield and a mirror. But though he was now so well equipped, he posted, not directly to Medusa, but first turned aside to the Greæ, who were half-sisters to the Gorgons. These Greæ were gray-headed, and like old women from their birth, having among them all three but one eye, and one tooth, which, as they had occasion to go out, they each wore by turns, and laid them down again upon coming back. This eye and this tooth they lent to Perseus, who, now judging himself sufficiently furnished, he, without further stop, flies swiftly away to Medusa, and finds her asleep. But not venturing his eyes, for fear she should wake, he turned his head aside, and viewed her in Pallas's mirror, and thus directing his stroke, cut off her head; when immediately, from the gushing blood, there darted Pegasus winged. Perseus now inserted Medusa's head into Pallas's shield, which thence retained the faculty of astonishing and benumbing all who looked on it."

This fable seems invented to show the prudent method of choosing, undertaking, and conducting a war. The chief thing to consider in undertaking war is a commission from Pallas, certainly not from Venus, as the Trojan war was, or other slight motive. Because the designs of war ought to be justified by wise counsels. As to the choice of war, the fable propounds three grave and useful precepts.

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[18] Ovid, Metam. iv.

The first is, that no prince should be over-solicitous to subdue a neighboring nation: for the method of enlarging an empire is very different from that of increasing an estate. Regard is justly had to contiguity or adjacency in private lands and possessions; but in the extending of empire, the occasion, the facility, and advantage of a war, are to be regarded instead of vicinity. Thus Perseus, though an eastern prince, readily undertook an expedition into the remotest parts of the western world. An opposite instance of the wisdom of this precept occurs in the different strategy of war practiced by Philip and Alexander. For Philip urged war only on the frontiers of his empire, and with great strife and peril barely succeeded in bringing a few cities under his rule, but Alexander carried his invading arms into distant countries; and with a felicitous boldness undertook an expedition against Persia, and subduing multitudinous nations on his journey, rested at last rather fatigued with conquest than with arms. This policy is further borne out by the propagation of the Roman power; for at the time that the arms of this martial people on the side of the west stretched no further than Liguria, they had brought under their dominion all the provinces of the east as far as Mount Taurus. In like manner, Charles the Eighth, finding a war with Great Britain attended with some dangers, directed his enterprise against Naples, which he subdued with wonderful rapidity and ease. One of the causes of these wonderful successes in distant wars is the low state of discipline and equipment, which invites the attack of the invading power, and the terror which is generally struck into the enemy from the bold audacity of the enterprise. Nor can the enemy retaliate or effect any reciprocal invasion, which always results from a war waged with the frontier nations. But the chief point is, that in subduing a neighboring state the choice of stratagems is narrowed by circumstances; but in a distant expedition, a man may roll the tide of war where the military discipline is most relaxed, or where the strength of the nation is most torn and wasted

by civil discord, or in whatever part the enemy can be the most easily subjugated.

The second precept is, that the cause of the war be just and honorable; for this adds alacrity both to the soldiers and the people who find the supplies, procures aids, alliances, and numerous other conveniences. Now, there is no cause of war more just and laudable than the suppressing of tyranny, by which a people are dispirited, benumbed, or left without life and vigor, as at the sight of Medusa. Such heroic acts transformed Hercules into a divinity. It was undoubtedly a point of religion with the Romans to aid with valor and speed such of their allies and confederates as were in any way distressed. So just and vindictive wars have generally met with success; as the war of the triumvirate in revenge for the death of Cæsar, the war of Severus for the death of Pertinax, and of Junius Brutus for the death of Lucretia; for they who take up arms to relieve and revenge the calamities of men fight under the standard of Perseus.

Lastly, it is prudently added, that as there were three of the Gorgons who represent war, Perseus singled her out for his expedition that was mortal; which affords this precept, that such kind of wars should be chosen as may be brought to a conclusion without pursuing vast and infinite hopes.

Again, Perseus' setting out is extremely well adapted to his undertaking, and in a manner commands success—he received despatch from Mercury, secrecy from Pluto, and foresight from Pallas. It also contains an excellent allegory, that the wings given him by Mercury were for his heels, not for his shoulders, because expedition is not so much required in the first preparations for war as in the subsequent matters that administer to the first; for there is no error more frequent in war than, after brisk preparations, to halt for subsidiary forces and effective supplies.

The allegory of Pluto's helmet rendering men invisible and secret, is sufficiently evident of itself; for secretness

appertains to celerity, inasmuch as speed prevents the disclosure of counsels: it therefore succeeds in importance. Pluto's helmet also seems to imply, that authority over the army is to be lodged in one chief; as directing committees in such cases are too apt to scatter dissensions among the troops, and to be swayed by paltry freaks and jealousies rather than by patriotism. It is not of less importance to discover the designs of the enemy, for which purpose the mirror of Pallas must be joined to the helmet of Pluto to disclose the weakness, the divisions, counsels, spies, and factions of the enemy. But as these arms are not sufficient to cope with all the casualties of war, we must grasp the shield of Pallas, *i.e.*, of Providence, as a defence from the caprices of fortune. To this belong the despatch of spies, the fortification of camps, the equipment and position of the army, and whatever tends to promote the success of a just defensive war. For in the issue of contests the shield of Pallas is of greater consequence than the sword of Mars.

But though Perseus may now seem extremely well prepared, there still remains the most important thing of all—before he enters upon the war he must of necessity consult the Greæ. These Greæ are treasons, half but degenerate sisters of the Gorgons, who are representatives of wars; for wars are generous and noble, but treasons base and vile. The Greæ are elegantly described as hoary-headed, and like old women from their birth, on account of the perpetual cares, fears, and trepidations attending traitors. Their force also, before it breaks out into open revolt, consists either in an eye or a tooth; for all faction alienated from a state is both watchful and biting, and this eye and tooth is as it were common to all the disaffected, because whatever they learn and know is transmitted from one to another, as by the hands of faction. And for the tooth they all bite with the same, and clamor with one throat, so that each of them singly expresses the multitude.

These Greæ, therefore, must be prevailed upon by Per-

seus to lend him their eye and their tooth—the eye to give him indications and make discoveries, the tooth for sowing rumors, raising envy, and stirring up the minds of the people. And when all these things are thus disposed and prepared, then follows the action of the war.

He finds Medusa asleep; for whoever undertakes a war with prudence generally falls upon the enemy unprepared, and nearly in a state of security; and here is the occasion for Pallas's mirror, for it is common enough, before the danger presents, to see exactly into the state and posture of the enemy; but the principal use of the glass is in the very instant of danger, to discover the manner thereof and prevent consternation, which is the thing intended by Perseus' turning his head aside and viewing the enemy in the glass.[19]

Two effects here follow the conquest—1. The darting forth of Pegasus, which evidently denotes fame, that flies abroad, proclaiming the victory far and near. 2. The bearing of Medusa's head in the shield, which is the greatest possible defence and safeguard; for one grand and memorable enterprise, happily accomplished, bridles all the motions and attempts of the enemy, stupefies disaffection, and quells commotions.

DIONYSUS, OR BACCHUS[20]

Explained of the Passions

"The fable runs, that Semele, Jupiter's mistress, having bound him by an inviolable oath to grant her an unknown request, desired he would embrace her in the same form and manner he used to embrace Juno; and the promise being irrevocable, she was burned to death with lightning in the performance. The embryo, however, was sewed up, and carried in Jupiter's thigh, till the complete time of

[19] Thus it is the excellence of a general early to discover what turn the battle is likely to take, and looking prudently behind, as well as before, to pursue a victory so as not to be unprovided for a retreat.

[20] Ovid's Metamorphoses, iii. iv. and vi.; and Fasti, iii. 767.

its birth; but the burden thus rendering the father lame, and giving him pain, the child was thence called Dionysus. When born, he was committed for some years to be nursed by Proserpina; and when grown up, appeared with such an effeminate face that his sex seemed somewhat doubtful. He also died and was buried for a time, but afterward revived. When a youth, he first introduced the cultivation and dressing of vines, the method of preparing wine, and taught the use thereof; whence becoming famous, he subdued the world, even to the utmost bounds of the Indies. He rode in a chariot drawn by tigers: there danced about him certain deformed demons called Cobali, etc.; the Muses also joined in his train. He married Ariadne, who was deserted by Theseus. The ivy was sacred to him. He was also held the inventor and institutor of religious rites and ceremonies, but such as were wild, frantic, and full of corruption and cruelty. He had also the power of striking men with frenzies. Pentheus and Orpheus were torn to pieces by the frantic women at his orgies, the first for climbing a tree to behold their outrageous ceremonies, and the other for the music of his harp. But the acts of this god are much entangled and confounded with those of Jupiter."

This fable seems to contain a little system of morality, so that there is scarce any better invention in all ethics. Under the history of Bacchus is drawn the nature of unlawful desire, or affection and disorder; for the appetite and thirst of apparent good is the mother of all unlawful desire, though ever so destructive; and all unlawful desires are conceived in unlawful wishes or requests, rashly indulged or granted before they are well understood or considered; and when the affection begins to grow warm, the mother of it (the nature of good) is destroyed and burned up by the heat. And while an unlawful desire lies in the embryo, or unripened in the mind, which is its father, and here represented by Jupiter, it is cherished and concealed, especially in the inferior part of the mind, corresponding to the thigh of the body, where pain twitches and depresses the mind so far

as to render its resolutions and actions imperfect and lame. And even after this child of the mind is confirmed, and gains strength by consent and habit, and comes forth into action, it must still be nursed by Proserpina for a time; that is, it skulks and hides its head in a clandestine manner, as it were underground, till at length, when the checks of shame and fear are removed, and the requisite boldness acquired, it either assumes the pretext of some virtue, or openly despises infamy. And it is justly observed, that every vehement passion appears of a doubtful sex, as having the strength of a man at first, but at last the impotence of a woman. It is also excellently added, that Bacchus died and rose again; for the affections sometimes seem to die and be no more; but there is no trusting them, even though they were buried, being always apt and ready to rise again whenever the occasion or object offers.

That Bacchus should be the inventor of wine carries a fine allegory with it; for every affection is cunning and subtile in discovering a proper matter to nourish and feed it; and of all things known to mortals, wine is the most powerful and effectual for exciting and inflaming passions of all kinds, being indeed like a common fuel to them all.

It is again with great elegance observed of Bacchus, that he subdued provinces and undertook endless expeditions; for the affections never rest satisfied with what they enjoy, but with an endless and insatiable appetite thirst after somewhat further. And tigers are prettily feigned to draw the chariot; for as soon as any affection shall, from going on foot, be advanced to ride, it triumphs over reason, and exerts its cruelty, fierceness, and strength against all that oppose it.

It is also humorously imagined, that ridiculous demons should dance and frisk about this chariot; for every passion produces indecent, disorderly, interchangeable, and deformed motions in the eyes, countenance, and gesture—so that the person under the impulse whether of anger, insult, love, etc., though to himself he may seem grand, lofty, or

obliging, yet in the eyes of others appears mean, contemptible, or ridiculous.

The Muses also are found in the train of Bacchus; for there is scarce any passion without its art, science, or doctrine to court and flatter it; but in this respect the indulgence of men of genius has greatly detracted from the majesty of the Muses, who ought to be the leaders and conductors of human life, and not the handmaids of the passions.

The allegory of Bacchus falling in love with a cast mistress is extremely noble; for it is certain that the affections always court and covet what has been rejected upon experience. And all those who, by serving and indulging their passions immensely raise the value of enjoyment, should know, that whatever they covet and pursue, whether riches, pleasure, glory, learning, or anything else, they only pursue those things that have been forsaken, and cast off with contempt by great numbers in all ages, after possession and experience.

Nor is it without a mystery that the ivy was sacred to Bacchus; and this for two reasons—First, because ivy is an evergreen, or flourishes in the winter; and, secondly, because it winds and creeps about so many things, as trees, walls, and buildings, and raises itself above them. As to the first, every passion grows fresh, strong, and vigorous by opposition and prohibition, as it were by a kind of contrast or antiperistasis,[21] like the ivy in the winter. And for

[21] The word ἀντιπερίστασις, used by the Greeks to express the forces of activity and resistance, which are continually producing all the variegated tissue of phenomena which mark the history of the moral and physical world, and are necessary to their preservation. Without reaction, action could not take place, as force can be only displayed in overcoming resistance, and we can have no idea of its existence except from its effect upon the antagonistic force it attempts to subdue. In mechanics, Newton has observed that reaction is always equal to action, and we may observe a similar principle in the antiperistasis of the moral world. The reactions in communities and individuals against any dominant principle are generally marked with excesses proportionally antagonistic to the fashions over which they prevail; and though no precise certainty can be acquired in the interpretation of phenomena connected with the human will, yet we think a vast amount of proximate truth might be elicited and a flood of light thrown upon the springs of our spiritual nature by a philosophic attempt

the second, the predominant passion of the mind throws itself, like the ivy, round all human actions, entwines all our resolutions, and perpetually adheres to and mixes itself in, among, or even overtops them.

And no wonder that superstitious rites and ceremonies are attributed to Bacchus, when almost every ungovernable passion grows wanton and luxuriant in corrupt religions; nor again, that fury and frenzy should be sent and dealt out by him, because every passion is a short frenzy and if it be vehement, lasting, and take deep root, it terminates in madness. And hence the allegory of Pentheus and Orpheus being torn to pieces is evident; for every headstrong passion is extremely bitter, severe, inveterate, and revengeful upon all curious inquiry, wholesome admonition, free counsel and persuasion.

Lastly, the confusion between the persons of Jupiter and Bacchus will justly admit of an allegory, because noble and meritorious actions may sometimes proceed from virtue, sound reason, and magnanimity, and sometimes again from a concealed passion and secret desire of ill, however they may be extolled and praised; insomuch that it is not easy to distinguish between the acts of Bacchus and the acts of Jupiter.

But perhaps we remain too long in the theatre—it is time we should advance to the palace of the mind.

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to generalize such movements and connect them with the higher laws of our mental constitution. Physically speaking, the force of the body resisting only augments the effect of the force which endeavors to conquer it; while in the moral world it increases both the effect and the power, as resistance irritates the assailing force and consequently excites it to redouble its efforts: hence may be seen the wisdom of that Providence who has hidden the springs of the universe from ocular vision to sharpen man's faculties in their discovery, and who ordinarily surrounds the course of genius with difficulties, in order that it may burst through them with purer flame.—*Ed.*

THIRD BOOK

CHAPTER I

Division of Learning into Theology and Philosophy. The latter divided into the Knowledge of God, of Nature, and of Man. Construction of Philosophia Prima as the Mother of all the Sciences

TO THE KING

ALL history, excellent king, treads the earth, performing the office of a guide rather than of a light: and poetry is, as it were, the stream of knowledge—a pleasing thing full of variations, and affects to be inspired with divine rapture, to which treasures also pretend. But now it is time I should awake and raise myself from the earth, and explore the liquid regions of philosophy and the sciences. Knowledge is like waters; some descend from the heavens, some spring from the earth. For all knowledge proceeds from a twofold source—either from divine inspiration or external sense. As for that knowledge which is infused by instruction, that is cumulative, not original, as it is in waters, which, besides the headsprings, are increased by the reception of other rivers which fall into them. We shall, therefore, divide sciences into theology and philosophy. In the former we do not include natural theology, of which we are to speak anon, but restrict ourselves to inspired divinity, the treatment of which we reserve for the close of the work, as the fruit and sabbath of all human contemplations. Philosophy has three objects; viz., God, nature, and man; as also three kinds of rays—for nature strikes the human intellect with a direct ray, God with a refracted ray, from the inequality of the medium between the Creator and the creatures, and man, as ex-

hibited to himself, with a reflected ray: whence it is proper to divide philosophy into the doctrine of the deity, the doctrine of nature, and the doctrine of man.

But as the divisions of the sciences are not like different lines that meet in one angle, but rather like the branches of trees that join in one trunk,[1] it is first necessary that we constitute a universal science as a parent to the rest, and as making a part of the common road to the sciences before the ways separate. And this knowledge we call "philosophia prima," primitive or primative or summary philosophy; it has no other for its opposite, and differs from other sciences rather in the limits whereby it is confined than in the subject as treating only the summits of things. And whether this should be noted as wanting may seem doubtful, though I rather incline to note it; for I find a certain rhapsody of natural theology, logics, and physics, delivered in a certain sublimity of discourse, by such as aim at being admired for standing on the pinnacles of the sciences; but what we mean is, without ambition, to design some general science, for the reception of axioms, not peculiar to any one science, but common to a number of them.

Axioms of this kind are numerous; for example, if equals be added to unequals, the wholes will be unequal. This is a rule in mathematics, which holds also in ethics, with regard to distributive justice. For in commutative justice, equity requires, that equal portions be given to unequal persons; but in distributive justice, that unequal portions should be distributed to unequals. Things agreeing to the same third, agree also with one another: this, likewise, is an axiom in mathematics, and, at the same time, so serviceable in logic as to be the foundation of syllogism.[2] Nature shows herself best in her smallest works. This is a rule in philosophy, that produced the atoms of Democritus,

[1] This observation is the foundation of Father Castel's late piece De Mathématique Universelle, wherein, by the help of sensible representations and divisions, he proposes to teach the sciences readily, and even abstract mathematics, to common capacities.—*Shaw.*

[2] Whately's Logic, ii. 3, § 1.

and was justly employed by Aristotle in politics, when he begins the consideration of a commonwealth in a family. All things change, but nothing is lost.[3] This is an axiom in physics, and holds in natural theology; for as the sum of matter neither diminishes nor increases, so it is equally the work of omnipotence to create or to annihilate it which even the Scripture testifies: "Didici quod omnia opera, quæ fecit Deus, perseverent in perpetuum: non possumus eis quicquam addere, nec auferre."[4] Things are preserved from destruction, by bringing them back to their principles. This is an axiom in physics, but holds equally in politics; for the preservation of states, as is well observed by Machiavel,[5] depends upon little more than reforming and bringing them back to their ancient customs. A putrid malady is more contagious in its early than in its more matured stages, holds in natural as in moral philosophy; for wicked and desperately impious persons do not corrupt society so much as they who blend with their vices a mixture of virtue. What tends to preserve the effects of the greatest laws of nature, displays the strongest action, is a rule in natural philosophy. For the first and universal motion, that preserves the chain and contexture of nature unbroken, and prevents a vacuum, as they call it, or empty discontinuity in the world, controls the more particular law which draws heavy bodies to the earth, and preserves the region of gross and compacted natures. The same rule is good in politics; for those things which conduce to the conservation of the entire commonwealth, control and modify those made for the welfare of particular members of a government. The same principle may be observed in theology; for, among the virtues of this class, charity is the most communicative, and excels all the rest. The force of an agent is augmented by the antiperistatis of the counteracting body,[6] is a rule in

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[3] Cf. Plat. Theæt. i. 152.
[4] Eccl. iii. 14, and xlii. 21.
[5] Discorso sopra la Prima Deca di Tito Livio, libro 3.
[6] Aristotle, Meteors, Problem 1, § 11.

civil states as in nature, for all faction is vehemently moved and incensed at the rising of a contrary faction.

A discord ending immediately in a concord sets off the harmony. This is a rule in music that holds also true in morals. A trembling sound in music gives the same pleasure to the ear, as the coruscation of water or the sparkling of a diamond to the eye—

"——splendet tremulo sub lumine pontus." [7]

The organs of the senses resemble the organs of reflection, as we see in optics and acoustics, where a concave glass resembles the eye, and a sounding cavity the ear. And of these axioms an infinite number might be collected; and thus the celebrated Persian magic was, in effect, no more than a notation of the correspondence in the structure and fabric of things natural and civil. Nor let any one understand all this of mere similitudes, as they might at first appear, for they really are one and the same footsteps, and impressions of nature, made upon different matters and subjects. And in this light the thing has not hitherto been carefully treated. A few of these axioms may indeed be found in the writings of eminent men, here and there interspersed occasionally; but a collected body of them, which should have a primitive and summary tendency to the sciences, is not hitherto extant, though a thing of so great moment as remarkable to show nature to be one and the same, which is supposed the office of a primary philosophy.

There is another part of this primary philosophy regarding the adventitious or transcendental condition of things; as little, much, like, different, possible, impossible, entity, nonentity, etc. For as these things do not properly come under physics, and as their logical consideration rather accommodates them to argumentation than existence, it is proper that this point be not quite deserted, as being of considerable dignity and use, so as to have some place in

[7] Æneid, vii. 9.

the arrangement of the sciences. But this should be done in a manner very different from the common: for example, no writer who has treated of much and little, endeavors to assign the cause why some things in nature are so numerous and large, and others so rare and small; for, doubtless, it is impossible in the nature of things, that there should be as great a quantity of gold as of iron, or roses as plenty as grass, and as great a variety of specific as of imperfect or non-specific nature.[8] So, likewise, nobody that treats of like and different has sufficiently explained, why between particular species there are almost constantly interposed some things that partake of both; as moss[9] between corruption and a plant; motionless fish between a plant and an animal; bats between birds and quadrupeds, etc. Nor has any one hitherto discovered why iron does not attract iron, as the loadstone does; and why gold does not attract gold, as quicksilver does, etc. But of these particulars we find no mention in the discourses of transcendentals; for men have rather pursued the quirks of words than the subtilties of things. And, therefore, we would introduce into primary philosophy a real and solid inquiry into these transcendentals, or adventitious conditions of beings, according to the laws of nature, not of speech.

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[8] Specific bodies; that is, those which have a certain homogeneous form and regularity in their organization, and which exist in such variety as to urge the mind to form them into species.—*Ed.*

[9] By the aid of the microscope, moss has been discovered to be only a collection of small plants, with parts as distinct and regular in their conformation as the larger plants. The vervain which generally covers the surface of moist bodies long exposed to the air presents similar appearances.—*Ed.*

CHAPTER II

Natural Theology with its Appendix, the Knowledge of Angels and Spirits

THUS having first seated the common parent of the sciences, as Berecynthia rejoicing over her celestial offspring—

"Omnes cœlicolas, omnes supera alta tenentes," [1]—

we return to our division of philosophy into divine, natural, and human; for natural theology may be justly called divine philosophy. Divine philosophy is a science, or rather the rudiments of a science, derivable from God by the light of nature, and the contemplation of his creatures; so that with regard to its object, it is truly divine; but with regard to its acquirement, natural. The bounds of this knowledge extend to the confutation of atheism, and the ascertaining the laws of nature, but not to the establishing of religion. And, therefore, God never wrought a miracle to convert an atheist, because the light of nature is sufficient to demonstrate a deity; but miracles were designed for the conversion of the idolatrous and superstitious, who acknowledged a God, but erred in the worship of him—the light of nature being unable to declare the will of God, or assign the just form of worshipping him. For as the power and skill of a workman are seen in his works, but not his person, so the works of God express the wisdom and omnipotence of the Creator, without the least representation of his image. And in this particular, the opinion of the heathens differed from the sacred verity, as supposing the world to be the image of God, and man a little image of the world. The Scripture never gives the world that honor, but calls it the work of his hands; making only man the image of God.[2] And, therefore, the being

[1] Æneid, vi. 787.

[2] Ps. viii. 3, cii. 25, et al.

of a God, that he governs the world, that he is all-powerful, wise, prescient, good, a just rewarder and punisher, and to be adored, may be shown and enforced from his works; and many other wonderful secrets, with regard to his attributes, and much more as to his dispensation and government over the universe, may also be solidly deduced, and made appear from the same. And this subject has been usefully treated by several.[3]

But from the contemplation of nature, and the principles of human reason, to dispute or urge anything with vehemence, as to the mysteries of faith, or over-curiously to examine and sift them, by prying into the manner of the mystery, is no safe thing: "Give unto faith the things that are faith's." And the heathens grant as much in that excellent and divine fable of the golden chain, where "men and gods are represented as unable to draw Jupiter to earth, but Jupiter able to draw them up to heaven."[4] So that it is a vain attempt to draw down the sublime mysteries of religion to our reason, but we should rather raise our minds to the adorable throne of heavenly truth. And in this part of natural theology, we find rather an excess than any defect; which we have however turned a little aside to note, on account of the extreme prejudice and danger which both religion and philosophy hence incur, because a mixture of these makes both a heretical religion and a fantastic and superstitious philosophy.[5]

It is otherwise, as to the nature of spirits and angels; this being neither unsearchable nor forbid, but in a great

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[3] And more particularly since, by Cudworth, in his "Intellectual System of the Universe"; Mr. Boyle, in his "Christian Virtuoso"; Mr. Ray, in his "Wisdom of the Creation"; Dr. Bentley in his "Discourse of the Folly and Unreasonableness of Atheism"; Dr. Clarke, in his "Demonstration of the Being and Attributes of God"; and by Derham, in his "Physico Theology." See also Raphson's "De Deo"; Dr. Nieuwentyt's "Religious Philosopher"; Mr. Whiston's "Astronomical Principles of Religion"; Commenius's "Physicæ ad lumen divinum reformatæ Synopsis"; Paley's "Natural Religion"; the Bridgewater Treatises, and Cardinal Wiseman's "Connection of Science with Revealed Religion."—*Ed.*

[4] Iliad, ix.

[5] See above, Prelim. sec. iii. 8, and hereafter of Theology, sec. ult.

part level to the human mind, on account of their affinity. We are, indeed, forbid in Scripture to worship angels, or to entertain fantastical opinions of them,[6] so as to exalt them above the degree of creatures, or to think of them higher than we have reason; but the sober inquiry about them, which either ascends to a knowledge of their nature by the scale of corporeal beings, or views them in the mind, as in a glass, is by no means forbid. The same is to be understood of revolted or unclean spirits: conversation with them, or using their assistance, is unlawful; and much more in any manner to worship or adore them: but the contemplation and knowledge of their nature, power, and illusions, appears from Scripture, reason, and experience, to be no small part of spiritual wisdom. Thus says the apostle, "Strategematum ejus non ignari sumus."[7] And thus it is as lawful in natural theology to investigate the nature of evil spirits, as the nature of poisons in physics, or the nature of vice in morality. But this part of knowledge relating to angels and spirits, which we call the appendage to natural theology, cannot be noted for deficient, as having been handled by many; but we may justly tax no small part of the writers in this way, either with levity, superstition, or fruitless speculation.

CHAPTER III

Natural Philosophy divided into Speculative and Practical. The Necessity of keeping these Two Branches distinct

BUT to leave natural theology, and proceed to natural philosophy; as it was well said by Democritus, that "the knowledge of nature lies concealed in deep mines and caves";[1] and by the alchemists, that "Vulcan is a second nature, imitating concisely what the first takes time and circuit to effect";[2] suppose natural philosophy

[6] St. Paul, Coloss. ii. 5, 18.
[7] II. Cor. ii. 11.
[1] Laertius, Life of Seneca.
[2] Paracelsus de Philos. Sagac.

were divided, as it regards the mine and the furnace, and two offices of philosophers, miners, and smelters introduced? This, indeed, may appear jocular, yet such a kind of division we judge extremely useful, when proposed in just and familiar terms; so that the doctrine of nature be divided into speculative and practical, or the search after causes, and the production of effects: the one entering into the bowels of nature, and the other forming her upon the anvil. Nor are we insensible of the strict union between causes and effects; so that the explanation of them must, in some measure, be coupled together: but as all solid and fruitful natural philosophy hath both an ascending and a descending scale of parts, leading from experience to axioms, and from axioms to new discoveries, it seems most advisable here, in the division of sciences, to separate speculation from operation, and treat them distinct.

CHAPTER IV

Division of the Speculative Branch of Natural Philosophy into Physics and Metaphysics. Physics relate to the Investigation of Efficient Causes and Matter; Metaphysics to that of Final Causes and the Form. Division of Physics into the Sciences of the Principles of Things, the Structure of Things, and the Variety of Things. Division of Physics in relation to the Variety of Things into Abstract and Concrete. Division of Concretes agrees with the Distribution of the Parts of Natural History. Division of Abstracts into the Doctrine of Material Forms and Motion. Appendix of Speculative Physics twofold: viz., Natural Problems and the Opinions of Ancient Philosophers. Metaphysics divided into the Knowledge of Forms and the Doctrine of Final Causes

THE speculative or theoretical part of natural philosophy we divide into physics and metaphysics; taking the word metaphysics in a sense different from that received. And here we must, once for all, declare, as to our use of words, that though our conceptions and notions are new, and different from the common, yet we

religiously retain the ancient forms of speech; for as we hope that the method, and clear explanation, we endeavor at, will free us from any misconstruction that might arise from an ill choice of words; so in everything else, it is our desire, as much as possible, without prejudice to truth and the sciences, not to deviate from ancient opinions and forms of speech. And here I cannot but wonder that Aristotle should proceed in such a spirit of contradiction, as he did to all antiquity; not only coining new terms of science at pleasure, but endeavoring to abolish all the knowledge of the ancients; so that he never mentions any ancient author but to reprove him, nor opinion but to confute it; which is the ready way to procure fame and followers. For certainly it happens in philosophical, as it does in divine truth: "I came in the name of my Father, and ye received me not; but if one came in his own name, ye would receive him."[1] Which divine aphorism, as applied to Antichrist, the great deceiver, plainly shows us that a man's coming in his own name, without regard to antiquity or paternity, is no good sign of truth, though joined with the fortune and success of being received. But for so excellent and sublime a genius as Aristotle, one would think he caught this ambition from his scholar, and affected to subdue all opinions, as Alexander did all nations; and thus erect himself a monarchy in his own contemplation. Though for this, perhaps, he may not escape the lash of some severe pen, no more than his pupil; and be called a successful ravager of learning, as the other was of countries.[2] Some are doubtless disposed to treat him with the same courtesy as his scholar, in saying,

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[1] St. John v. 43.

[2] We should rather say that Alexander caught the fire of ambition from his master, as Aristotle put forth his pretensions to mental empire long before his pupil overran Egypt. In addition, it may be observed that Aristotle was an Athenian, and that the strong antipathies which his countrymen bore to the king of Persia were increased by the ties of blood and friendship which bound him to Hermias, king of Atarné, whom the eastern despot had abused. It is most likely, therefore, that Aristotle never missed an opportunity of exciting

"Fœlix doctrinæ prædo, non utile mundo
Editus exemplum." [3]

But on the other hand, desiring, by all possible means, to cultivate and establish a free commerce between ancient and modern learning, we judge it best religiously to side with antiquity, and therefore to retain ancient terms, though we frequently alter their sense, according to that moderate and laudable usage in politics, of introducing a new state of things, without changing the styles and titles of government.[4]

Thus then we distinguish metaphysics, as may appear by what was above delivered, from primary philosophy,[5] which has hitherto been taken from it, making this the common parent of the sciences, and that a part of natural philosophy. We have assigned the common and promiscuous axioms of the sciences to primitive philosophy; and all relative and accidental conditions of essences, which we call transcendent, as multitude, paucity, identity, diversity, possible, impossible, and the like, we have included in the same province, with this understanding, that they be handled according to their effects in nature, and not logically. We have referred the inquiry concerning God, unity, goodness, angels, and spirits, to natural philosophy. But to assign the proper office of metaphysics, as contradistinguished from primary philosophy, and natural theology, we must note, that as physics regards the things which are wholly immersed in matter and movable, so metaphysics regards what is more abstracted and fixed; that physics supposes only existence, motion, and natural necessity, while metaphysics supposes also mind and idea. But to be more express: as we have divided natural philosophy into the investigation of causes, and the production of effects, and

his royal pupil to that conquest, which the Athenians had previously attempted to execute; as affording him the satisfaction of retaliating the injuries of a departed friend, as well as an opportunity of collecting a store of natural facts on which he might erect the superstructure of the physical sciences.—*Ed.*

[3] Lucan, x. 21.

[4] Tacitus, Annals, i.

[5] Concerning primary philosophy, see above.

referred the investigation of causes to theory, which we again divide into physical and metaphysical; it is necessary that the real difference of these two be drawn from the nature of the causes they inquire into; and therefore, plainly, physics inquires into the efficient and the matter, and metaphysics into the form and the end. Physics, therefore, is vague and unstable as to causes, and treats movable bodies as its subjects, without discovering a constancy of causes in different subjects. Thus the same fire gives hardness to clay and softness to wax, though it be no constant cause either of hardness or softness.[6]

> "Limus ut hic durescit, et hæc ut cera liquescit
> Uno eodemque igni." [7]

We divide physics into three parts; for nature is either collected into one total, or diffused and distributed. Nature is directed in its collocations either by the common elements in the diversity of things, or by the unity which prevails in the one integral fabric of the universe. Whence this union of nature produces two parts of physics; the one relating to the principles of things, and the other to the structure of the universe; while the third exhibits all the possible varieties and lesser collections of things. And this latter is like a first gloss, or paraphrase in the interpretation of nature. None of the three are deficient entirely, but how justly and solidly they have been treated is another question.

The third part we again divide into two others, with regard to concretes and abstracts, or into physics of creatures and physics of natures: the one inquiring into substances, and all the variety of their accidents; the other into accidents through all the variety of substances. Thus if inquiry be made about a lion or an oak; these support many

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[6] Physics, therefore, may be defined that part of universal philosophy which observes and considers the procedure of nature in bodies, so as to discover her laws, powers, and effects; and the material origins, and causes thereof, in different subjects; and thence from rules for imitating, controlling, or even excelling her works, in the instances it considers.—*Shaw.*

[7] Virgil's Eclogues, viii. 80.

different accidents: so if the inquiry were about heat or gravity; these are found in many different substances. But as all physics lies in the middle, between natural history and metaphysics; so the former part approaches nearer to natural history, and the latter to metaphysics.

Concrete physics has the same division with natural history; being conversant either about celestial appearances, meteors, and the terrestrial globe; or about the larger assemblages of matter, called the elements; and the lesser or particular bodies: as also about præter-generations and mechanics. For in all these, natural history examines and relates the matters of fact; and physics their instable, or material and efficient causes. And among these parts of physics, that is absolutely lame and incomplete, which regards the celestial bodies, though for the dignity of the subject it claims the highest regard. Astronomy, indeed, is well founded in phenomena; yet it is low and far from solid. But astrology is in many things destitute of all foundation. And to say the truth, astronomy itself seems to offer Prometheus's sacrifice to the understanding; for as he would have imposed upon Jupiter a fair large hide stuffed with straw, and leaves, and twigs, instead of the ox itself, so astronomy gives us the number, situation, motion, and periods of the stars, as a beautiful outside of the heavens, while the flesh and the entrails are wanting; that is, a well-fabricated system, or the physical reasons and foundations for a just theory, that should not only solve phenomena, as almost any ingenious theory may do, but show the substance, motions, and influences of the heavenly bodies, as they really are. For those dogmas are long since exploded, which asserted the rapture of the first morn and the solidity of the heavens, in which the stars were supposed fastened like nails in the vaulted roof of a hall, and other opinions almost as silly; viz., that the zodiac has several poles; that there exists a movement of resilience against the rapture of the first motion; that all parts of the firmament are wheeled round in perfect circles, with eccentric and epi-

cycles to preserve their circular rotation; that the moon has no influence over bodies higher in the heavens; the absurdity of which notions have thrown men upon the extravagant idea of the diurnal motion of the earth, an opinion which we can demonstrate to be most false.[8] But scarce any one has inquired into the physical causes of the substance of the heavens, stellar and interstellar; the different velocities of the celestial bodies with regard to one another; the different accelerations of motion in the same planet: the sequences of their motion from east to west;[9] the progressions, stations, and retrogradations of the planets, the stoppage and accidents of their motion in perigee and apogee, the obliquity of their motions; why the poles of rotation are principally in one quarter of the heavens; why certain planets keep a fixed distance from the sun, etc. Inquiries of this kind have hitherto been hardly touched upon. but the pains have been chiefly bestowed in mathematical observations and demonstrations; which indeed may show how to account for all these things ingeniously, but not how they actually are in nature: how to represent the apparent motions of the heavenly bodies, and machines of them, made according to particular fancies; but not the real causes and truth of things. And therefore astronomy, as it now stands, loses its dignity by being reckoned among the mathematical arts, for it ought in justice to make the most noble part of physics.[10] And whoever despises the imaginary separa-

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[8] That doctrine had been recently demonstrated by Galileo, and defended by Gilbert.

[9] That is, from west to east, according to the Copernican system.—*Ed.*

[10] Bacon maps out the entire region of human knowledge, breaking up the old sections, and assigning to each science new boundaries more conformable in his view to strict philosophical notions than the old; yet he capriciously enough makes mathematics an essential part of metaphysics, or inquiry into forms, and astronomy a compartment of mathematics, and then decries this absurd arrangement as the notion of the age. It is evident, however, that the age was innocent of the charge, and that Bacon snatched up the idea from the demonstrations which Copernicus, Kepler, and Gilbert employed to dethrone the Ptolemaic theory of the heavens. Bacon was too jealous of Gilbert to entertain one moment any doctrine that he advanced; and a little further on he alludes to his mathematical thesis in favor of the earth's diurnal motion as proofs contradicted by natural philosophy, though incapable of being confuted by observation. From

tion between terrestrial and celestial things, and well understands the more general appetites and passions of matter,[11] which are powerful in both, may receive a clear information of what happens above from that which happens below; and from what passes in the heavens, he may become acquainted with some inferior motions hitherto undiscovered, not as these are governed by those, but as they both have the same common passions. We, therefore, report this physical part of astronomy as wanting, in comparison of which the present animated astronomy is but as the stuffed ox of Prometheus—aping the form but wanting the substance.

But for astrology, it is so full of superstition, that scarce anything sound can be discovered in it; though we judge it should rather be purged than absolutely rejected. But if any one shall pretend that this science is founded, not in reason and physical contemplations, but in the direct experience and observation of past ages, and therefore not to be examined by physical reasons, as the Chaldeans boasted, he may at the same time bring back divination, auguries, soothsaying, and give in to all kinds of fables; for these also were said to descend from long experience.

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such demonstrations, however, astronomy could no more be regarded as a branch of mathematics than commerce or politics, because they sometimes call in the aid of arithmetic; and if Bacon had followed out this strange notion, he must have made, with Iamblicus, numbers the parent of all knowledge, as there is no department of science advanced beyond mere empiricism which does not rest upon the basis of figures. The degradation which Bacon imputes to astronomy from its association with mathematics shows that the most acute minds are no more privileged than the weakest to decide questions in relation to things of which they are perfectly ignorant. It is needless to say that a science only advances beyond empiricism to those intermediate or general axioms which Bacon so ardently desired to reach, so far as its phenomena admit of being extended and corrected by mathematical forms, and that it was only through such agencies that astronomy, almost in the space of a single age, was transformed from a mere empiric colligation of facts into the highest of the deductive sciences. The confusion arose from the consequence of Bacon's fundamental division of the sciences, which confounded those which are purely formal with the substantive sciences of which they are in some measure a universal condition, and hindered Bacon from seizing with precision upon the functions and limits of these sciences, and comprehending the important part the mathematical portion of them perform, in extending and corroborating physical discovery.—*Ed.*

[11] Tendencies, forces, efforts, and effects.—*Ed.*

But we receive astrology as a part of physics, without attributing more to it than reason and the evidence of things allow, and strip it of its superstition and conceits. Thus we banish that empty notion about the horary reign of the planets, as if each resumed the throne thrice in twenty-four hours, so as to leave three hours supernumerary: and yet this fiction produced the division of the week, a thing so ancient and so universally received. Thus likewise we reject, as an idle figment, the doctrine of horoscopes, and the distribution of the houses, though these are the darling inventions of astrology, which have kept revel, as it were, in the heavens. And we are surprised that some eminent authors in astrology should rest upon so slender an argument for erecting them, as because it appears by experience that the solstices, the equinoxes, the new and full moon, etc., have a manifest operation upon natural bodies, therefore the more curious and subtile positions of the stars must produce more exquisite and secret effects: whereas, laying aside those operations of the sun, which are owing to manifest heat, and a certain attractive virtue of the moon, which causes the spring tide; the other effects of the planets upon natural bodies are, so far as experience reaches, exceeding small, weak, and latent. Therefore the argument should run thus: since these greater revolutions are able to effect so little, those more nice and trifling differences of positions will have no force at all. And lastly, for the calculation of nativities, fortunes, good or bad hours of business, and the like fatalities, they are mere levities that have little in them of certainty and solidity, and may be plainly confuted by physical reasons.

And here we judge it proper to lay down some rules for the examination of astrological matters, in order to retain what is useful therein, and reject what is insignificant. Thus, 1. Let the greater revolutions be retained, but the lesser of horoscopes and houses be rejected—the former being like ordnance, which shoot to a great distance, while the other are but like small bows, that do no execution.

2. The celestial operations affect not all kinds of bodies, but only the more sensible, as humors, air, and spirits.[12] Here we expect the operations of the sun's heat, which may doubtless penetrate metals and other subterranean bodies, and confine the other operations chiefly to the air, the humors, and the spirits of things. 3. All the celestial operations rather extend to masses of things than to individuals. Though they may obliquely reach some individuals also, which are more sensible than the rest, as a pestilent constitution of the air affects those bodies which are least able to resist it. 4. All the celestial operations produce not their effects instantaneously and in a narrow compass, but exert them in large portions of time and space. Thus predictions as to the temperature of a year may hold good, but not with regard to single days. 5. There is no fatal necessity in the stars; and this the more prudent astrologers have constantly allowed. 6. We will add one thing more, which, if amended and improved, might make for astrology, viz., that we are certain the celestial bodies have other influences besides heat and light, but these influences act not otherwise than by the foregoing rules, though they lie so deep in physics as to require a fuller explanation. So that, upon the whole, we must register as defective an astrology wrote in conformity to these principles, under the name of Astrologia Sana.

This just astrology should contain—1. The doctrine of the commixture of rays, viz., the conjunctions, oppositions, and other situations, or aspect of the planets with regard to one another, their transits through the signs of the zodiac, and their situation in the same signs, as the situation of planets in a sign is a certain conjunction thereof with the stars of that sign; and as the conjunctions, so likewise should the oppositions and other aspects of the planets, with regard to the celestial signs, be remarked, which has not hitherto been fully done. The commixtures of the rays

[12] But if celestial bodies act upon humors, air, and spirits, and these in turn affect solid bodies, it follows that they also act on solid bodies.—*Ed.*

of the fixed stars with one another are of use in contemplating the fabric of the world, and the nature of the subjacent regions, but in no respect for predictions, because at all times alike. 2. This astrology should take in the nearest approaches and the furthest removes of each planet to and from the zenith, according to the climate; for all the planets have their summer and winter, wherein they dart their rays stronger or weaker, according to their perpendicular or oblique direction. So we question not but the moon in Leo has, in the same manner as the sun, a greater effect upon natural bodies with us than when in Pisces, not because the moon in Leo moves the head, and under Pisces affects the feet, but by reason of her greater perpendicular elevation and nearer approach to the larger stars. 3. It should receive the apogees and perigees of the planets, with a proper inquiry into what the vigor of the planets may perform of itself, and what through their nearness to us; for a planet is more brisk in its apogee, but more communicative in its perigee. 4. It should include all the other accidents of the planets' motions, their accelerations, retardations, courses, stations, retrogradations, distances from the sun, increase and diminutions of light, eclipses, etc. For all these things affect the rays of the planets, and cause them to act either weaker, stronger, or in a different manner. 5. This astrology should contain all that can by any means be known or discovered of the nature of the stars, both erratic and fixed, considered in their own essence and activity, viz., their magnitude, color, aspect, sparkling and vibrating of light; their situation with regard to the poles or equinoctial; the constellations, which thicker set and which thinner, which higher, which lower; what fixed stars are in the zodiac, and what out of it; the different velocities of the planets, their different latitudes, which of them are retrograde, and which not; their different distances from the sun; which move swiftest in their apogee, and which in their perigee; the irregularities of Mars, the excursions of Venus, and the extraordinary phases, accidents, and ap-

pearances observable in Venus and the sun; with other things of this kind. 6. Lastly, let it contain, from tradition, the particular natures and alterations of the planets and fixed stars; for as these are delivered with general consent, they are not lightly to be rejected, unless they directly contradict physical reasons. And of such observations let a just astrology be formed: and according to these alone should schemes of the heavens be made and interpreted.

Such an astrology should be used with greater confidence in prediction, but more cautiously in election, and in both cases with due moderation. Thus predictions may be made of comets, and all kinds of meteors, inundations, droughts, heats, frosts, earthquakes, fiery eruptions, winds, great rains, the seasons of the year, plagues, epidemic diseases, plenty, famine, wars, seditions, sects, transmigrations of people, and all commotions or great innovations of things natural and civil. Predictions may possibly be made more particular, though with less certainty, if when the general tendencies of the times are found, a good philosophical or political judgment applies them to such things as are most liable to this kind of accidents. For example, from a foreknowledge of the seasons of any year they might be apprehended more destructive to olives than grapes, more hurtful in distempers of the lungs than the liver, more pernicious to the inhabitants of hills than valleys, and, for want of provisions, to monks than courtiers, etc. Or if any one, from a knowledge of the influence which the celestial bodies have upon the spirits of mankind, should find it would affect the people more than their rulers, learned and inquisitive men more than the military, etc. For there are innumerable things of this kind that require not only a general knowledge, gained from the stars, which are the agents, but also a particular one of the passive subjects.

Nor are elections to be wholly rejected, though not so much to be trusted as predictions; for we find in planting,

sowing, and grafting, observations of the moon are not absolutely trifling, and there are many particulars of this kind. But elections are more to be curbed by our rules than predictions; and this must always be remembered, that election only holds in such cases where the virtue of the heavenly bodies, and the action of the inferior bodies also, is not transient, as in the examples just mentioned; for the increases of the moon and planets are not sudden things. But punctuality of time should here be absolutely rejected. And perhaps there are more of these instances to be found in civil matters than some would imagine.

There are but four ways of arriving at this science, viz., 1. By future experiments; 2. Past experiments; 3. Traditions; and, 4. Physical reasons. But, 1. It is in vain at present to think of future experiments, because many ages are required to procure a competent stock of them. And, 2. As for the past, it is true they are within our reach, but it is a work of labor and much time to procure them. Thus astrologers may, if they please, draw from real history all greater accidents, as inundations, plagues, wars, seditions, deaths of kings, etc., as also the positions of the celestial bodies, not according to fictitious horoscopes, but the above-mentioned rules of their revolutions, or such as they really were at the time, and where the event conspires, erect a probable rule of prediction. 3. All traditions should be well sifted, and those thrown out that manifestly clash with physical reasons, leaving such in their full force as comport well therewith. And, 4. Those physical reasons are best suited to this inquiry which search into the universal appetites and passions of matter, and the simple genuine motions of the heavenly bodies. And this we take for the surest guide to astrology.

There remains another piece of wild astrology, though usually separated from it, and transferred to celestial magic as they call it. It is a strange fiction of the human brain,[13]

[13] Agrippa, Mystical Philosophy.

the receiving the benign action of the stars upon seals and signets of gems or metal suited to the purpose, so as to detain and fix, as it were, the felicity of that hour which would otherwise be volatile and fugitive. The poet passionately complains of a similar art among the ancients long since buried in oblivion—

> "Annulus infuso non vivit mirus Olympo,
> Non magis ingentes humili sub lumine Phœbos,
> Fert gemma, aut celso divulsas cardine lunas."

Indeed the Roman Church has upheld the venerableness of saints' relics and their virtues, since the flux of time has no power to abate the force and efficacy of spiritual things; but to assert that the relics of persons might be so determined as to continue and perpetuate the virtue of an hour which is past, and as it were dead, is mere superstition and imposture.

Abstract physics may be justly divided into two parts—the doctrine of the schemes of matter, and the doctrine of appetites and motions. The schemes of matter are density, rarity, gravity, levity, heat, cold, tangibility, intangibility, volatile, fixed, determinate, fluid, humid, dry, unctuous, crude, hard, soft, fragile, tensile, porous, united, spirituous, jejune, simple, compound, absolute, imperfectly mixed, fibrous and veiny, simple position, or equable, similar, dissimilar, specificate, unspecificate, organical, inorganical, animate and inanimate; and further than this we proceed not. For sensible and insensible, rational and irrational, we refer to the doctrine of man.

Appetites and motions are of two kinds—as being either simple motions, wherein the spring of all natural actions is contained, that is, in respect of their schemes of matter; or motions compounded or produced, and with these the common philosophy, which enters but little into the body of nature, begins. But these compound motions, such as generation, corruption, etc., should be esteemed certain results or effects of simple motions, rather than primitive motions

themselves. The simple motions are—1. Motion of resistance, or preventive of penetration of dimensions; 2. Motion of connection, preventive of a vacuum, as it is called; 3. Motion of liberty, preventive of preternatural compression, or extension; 4. Motion in a new orb, with regard to rarefaction and condensation; 5. Motion of the second connection, or preventive of solution of continuity; 6. Motion of the greater congregation, or with regard to masses of connatural bodies, commonly called natural motion; 7. Motion of the lesser congregation, vulgarly termed motion of sympathy and antipathy; 8. Disponent motion, with regard to the just placing of parts in the whole; 9. Motion of assimilation, or multiplicative of its own nature upon another body; 10. Motion of excitation, where the noble agent excites the latent and benumbed motion in another thing; 11. Motion of the seal, or impression, by an operation without communication of substance; 12. Regal motion, or the restraint of other motions by a predominant one; 13. Endless motion, or spontaneous rotation; 14. Motion of trepidation, or the motion of systole and diastole, with regard to bodies placed between things advantageous and hurtful; 15. And lastly, Motion couchant, or a dread of motion, which is the cause of many effects. And such are the simple motions that really proceed out of the inward recesses of nature; and which being complicated, continued, used alternately, moderated, repeated, and variously combined, produce those compound motions or results of motion we call generation, corruption, increase, diminution, alteration, translation, mixtion, separation, and conversion.

The measures of motions are an attendant on physics, as showing the effects of quantity, distance, or the sphere of activity, intension and remission, short and long continuance, activity, dulness, and incitation. And these are the genuine parts of abstract physics, which wholly consists—1. In the schemes of matter; 2. Simple motions; 3. The results of sums of motions; and, 4. The measures of motions. As for voluntary motion in animals—the motion in the ac-

tion of the senses, the motions of the imagination, appetite, and will, the motion of mind, the determination, and other intellectual faculties—they have their own proper doctrines under which we range them, confining the whole of physics to matter and efficient, and assigning over forms and ends to metaphysics.

We must annex two remarkable appendages to physics, with regard rather to the manner, than the matter of inquiry; viz., natural problems, and the opinions of the ancient philosophers. The first is an appendage of nature at large, and the other of nature united or summed up; both relating to a diligent kind of doubting, which is no contemptible part of knowledge. Now, problems contain particular doubts and opinions, general ones, as to principles and structure. In the books of Aristotle we have a noble example of problems, deserving not only the praises but the imitation of posterity, since new doubts are daily arising. But the utmost caution is to be used in such an undertaking. The recording and proposing of doubts has two advantages; the one, as it defends philosophy against errors, when that which is not clear is neither judged nor asserted, lest error thus should multiply error, but judgment is suspended upon it, and not made positive; the other is, that doubts once registered are like so many sponges, which perpetually suck and draw to themselves the increases of knowledge; whence those things which would have been slightly passed over, unless they had been doubted of before, come now from this very doubting to be more attentively considered. But these two advantages will scarce balance this single inconvenience, unless well provided against; viz., that when a doubt is once admitted for just, and becomes, as it were, authentic, it presently raises up disputants on both sides, who transmit to posterity the same liberty of doubting still; so that men seem to apply their wits rather to nourish the doubt than solve it. And of this we everywhere meet with examples in lawyers and scholars; who, when a doubt once gains admit-

tance, would have it remain a doubt forever, and engage themselves in doubting as well as asserting; whereas the true use of wit is to render doubtful things certain, and not certain ones doubtful. And therefore I set down as wanting a calendar of doubts or problems in nature, and recommend it to be undertaken, with care to blot out daily, as knowledge increases, those that are clearly discussed and settled. And this calendar we would have attended with another of no less utility; for as in every inquiry there are things plainly true, things doubtful, and things plainly false, it were exceeding proper that along with a calendar of doubts should go a calendar of falsehoods and vulgar errors, both in natural history and opinions, that they may no longer disturb the sciences.

As to the opinions of the ancient philosophers, for example those of Pythagoras, Philolaus, Xenophanes, Anaxagoras, Parmenides, Leucippus, Democritus, and others, which men usually pass slightly over, it is proper to cast a modest eye upon them. For though Aristotle, after the Ottoman manner, thought he could not reign secure without putting all his brethren to death, yet those who do not affect dominion and rule, but the inquiry and illustration of truth, will find their account in beholding, at one view, the different opinions of different philosophers, as to the nature of things. But there is no room to expect any pure truth from these or the like theories: for as the celestial appearances are solved both upon the suppositions of Ptolemy and Copernicus; so common experience, and the obvious face of things, may be applied to many different theories: while a much stricter procedure is required in the right discovery of truth. For as Aristotle accurately remarks, that children, when they first begin to speak, call every woman mother; but afterward learn to distinguish their own:[14] so a childish experience calls every philosophy its mother, but when grown up, will easily distinguish its true one. In the mean-

[14] Aristotle's Physics.

time, it is proper to read the disagreeing philosophies, as so many different glosses of nature. We could therefore wish there were, with care and judgment, drawn up a work of the ancient philosophies,[15] from the lives of old philosophers, Plutarch's collection of their opinions, the citations of Plato, the confutations of Aristotle, and the scattered relations of other books, whether ecclesiastical or heathen; as Lactantius, Philo, Philostratus, etc. For such a work is not yet extant; and we would advise it to be done distinctly; so that each philosophy be drawn out and continued separate, and not ranged under titles and collections, as Plutarch has done. For every philosophy, when entire, supports itself, and its doctrines thus add light and strength to each other; which, if separated, sound strange and harsh. Thus, when we read in Tacitus the acts of Nero or Claudius, clothed with the circumstances of times, persons, and occasions, everything seems plausible; but when the same are read in Suetonius, distributed under chapters and commonplaces, and not described in the order of time, they look monstrous, and absolutely incredible. And the case is the same with philosophy proposed entire, and dismembered, or cut into articles. Nor do we exclude from this calendar the modern theories and opinions, as those of Paracelsus, elegantly reduced by Severinus into a body and harmony of philosophy; or of Telesius, who, in restoring the philosophy of Parmenides, has turned their own weapons against the Peripatetics; or of Gilbert, who revived the doctrines of Philolaus; or of any other, provided he be worthy. But as there are whole volumes of these authors extant, we would only have the

[15] The work here proposed is of vast extent, and a fit undertaking for a society, as intended to include all the ancient and modern systems of philosophy, or the history of knowledge through all ages and countries. Considerable progress has, however, been made in it, particularly by Vossius "De Philosophia, et Philosophorm Sectis," continued with a supplement by Russel, printed at Jena, in the year 1705; by Pancirollus, "De Rebus inventis et perditis"; by Paschius, "De Novis Inventis, quibus facem prætulit antiquitas"; by Stanley in his "Lives of the Philosophers"; by Herbelot in his "Bibliothèque Universelle"; by M. Bayle in his "Dictionary," etc. For more collections, histories, and writings to this purpose, see "Struvii Bibliotheca Philosophica," Morhof's "Polyhistor," and "Stoltii Introductio in Historiam Literariam."—*Shaw.*

result drawn out and joined to the rest. And so much for physics and its appendages.

To metaphysics we assign the inquiry of formal and final causes. But an opinion has prevailed, as if the essential forms, or real differences of things, were absolutely undiscoverable by human means; granting, at the same time, that if they could be discovered, this, of all the parts of knowledge, would be the most worthy of inquiry. As to the possibility of the thing, there are indolent discoverers, who see nothing but sea and sky, absolutely deny there can be any land beyond them. But it is manifest that Plato, a man of a sublime genius, who took a view of everything as from a high rock, saw in his doctrine of ideas, that forms were the true object of knowledge";[16] though he lost the advantage of this just opinion by contemplating and grasping at forms totally abstracted from matter, and not as determined in it;[17] whence he turned aside to theological speculations, and therewith infected all his natural philosophy. But if with diligence, seriousness, and sincerity, we turn our eyes to action and use, we may find, and become acquainted with those forms, the knowledge whereof will wonderfully enrich and prosper human affairs.

The forms of substances, indeed, viz., the species of creatures,[18] are so complicated and interwoven, that the inquiry into them is either vain, or should be laid aside for a time, and resumed after the forms of a more simple nature have been duly sifted and discovered. For as it were neither easy nor useful to discover the form of a sound that shall make a word, since words, by the composition and transpositions of letters are infinite; but practicable, easy, and useful to discover the form of a sound expressing a single letter, or by what collision or application of the organs of

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[16] In the Timæus, *passim*, et Rep. x. *init.* Cf. Hooker, i. 3, 4; compare also Hallam's Literature of Europe, part iii. c. 3, p. 402.

[17] As Mr. Boyle has excellently shown, by a large induction of experiments and crucial instances, wherewith most of his physical inquiries are enriched.

[18] As plants, animals, minerals; the elements fire, air, water, earth, etc.

the voice, it was made; and as these forms of letters being known, we are thence directly led to inquire the forms of words: so, to inquire the form of an oak, a lion, gold, water, or air, were at present vain; but to inquire the form of density, rarity, heat, cold, gravity, levity, and other schemes of matter and motions, which, like the letters of the alphabet, are few in number, yet make and support the essences and forms of all substances, is what we would endeavor after, as constituting and determining that part of metaphysics we are now upon.

Nor does this hinder physics from considering the same natures in their fluxile causes only; thus, if the cause of whiteness in snow, or froth, were inquired into, it is judged to be a subtile intermixture of air with water; but this is far from being the form of whiteness, since air intermixed with powdered glass or crystal is also judged to produce whiteness no less than when mixed with water: this, therefore, is only the efficient cause, and no other than the vehicle of the form. But if the inquiry be made in metaphysics, it will be found that two transparent bodies, intermixed in their optical portions, and in a simple order, make whiteness. This part of metaphysics I find defective; and no wonder; because in the method of inquiry hitherto used, the forms of things can never appear. The misfortune lies here, that men have accustomed themselves to hurry away, and abstract their thoughts too hastily, and carry them too remote from experience and particulars, and have given themselves wholly up to their own meditations and arguments.

The use of this part of metaphysics is recommended by two principal things: first, as it is the office and excellence of all sciences to shorten the long turnings and windings of experience, so as to remove the ancient complaint of the scantiness of life, and the tediousness of art;[19] this is best performed by collecting and uniting the axioms of the sci-

[19] Compare Plat. Thæet. i. 155, 156.

ences into more general ones, that shall suit the matter of all individuals. For the sciences are like pyramids, erected upon the single basis of history and experience, and therefore a history of nature is, 1, the basis of natural philosophy; and 2, the first stage from the basis is physics; and 3, that nearest the vertex metaphysics; but 4, for the vertex itself, "the work which God worketh from the beginning to the end,"[20] or the summary law of nature, we doubt whether human inquiry can reach it. But for the other three, they are the true stages of the sciences, and are used by those men who are inflated by their own knowledge, and a daring insolence, as the three hills of the giants to invade heaven.

> "Ter sunt conati imponere Pelio Ossam
> Scilicet, atque Ossæ frondosum involvere Olympum." [21]

But to the humble and the meek they are the three acclamations, Sanctus, sanctus, sanctus; for God is holy in the multitude of his works, as well as in their order and union,[22] and therefore the speculation was excellent in Parmenides and Plato, that all things by defined gradations ascend to unity.[23] And as that science is the most excellent, which least burdens the understanding by its multiplicity; this property is found in metaphysics, as it contemplates those simple forms of things, density, rarity, etc., which we call forms of the first class; for though these are few, yet, by their commensurations and co-ordinations, they constitute all truth.

The second thing that ennobles this part of metaphysics, relating to forms, is, that it releases the human power, and leads it into an immense and open field of work; for physics direct us through narrow rugged paths, in imitation of the crooked ways of ordinary nature; but the ways of wisdom, which were anciently defined as "rerum divinarum et humanarum scientia,"[24] are everywhere wide, and abounding in

[20] Eccles. iii. 1. [21] Virgil, Georgics, i. 281. [22] Apocalypse, iv.
[23] See conclusion of the Dialogue entitled Parmenides.
[24] Plato's Phædo; Cicero, Tuscul. Quæst. 4 Defin. 2.

plenty, and variety of means. Physical causes, indeed, by means of new inventions, afford light and direction in a like case again; but he that understands a form knows the ultimate possibility of superinducing that nature upon all kinds of matter, and is therefore the less restrained or tied down in his working, either as to the basis of the matter or the condition of the efficient. Solomon also describes this kind of knowledge, though in a more divine manner: "Non arctabuntur gressus tui, et currens non habebis offendiculum."[25] Thus denoting that the paths of wisdom are not liable to straits and perplexities.

The second part of metaphysics, is the inquiry of final causes, which we note not as wanting, but as ill-placed; these causes being usually sought in physics, not in metaphysics, to the great prejudice of philosophy; for the treating of final causes in physics has driven out the inquiry of physical ones, and made men rest in specious and shadowy causes, without ever searching in earnest after such as are real and truly physical. And this was not only done by Plato, who constantly anchors upon this shore; but by Aristotle, Galen, and others, who frequently introduce such causes as these: "The hairs of the eyelids are for a fence to the sight.[26] The bones for pillars whereon to build the bodies of animals. The leaves of trees are to defend the fruit from the sun and wind. The clouds are designed for watering the earth," etc. All which are properly alleged in metaphysics; but in physics are impertinent, and as remoras to the ship, that hinder the sciences from holding on their course of improvement, and introducing a neglect of searching after physical causes. And therefore the natural philosophies of Democritus and others, who allow no God or mind in the frame of things, but attribute the structure of the universe to infinite essays and trials of nature, or what they call fate or fortune, and assigned the causes of particular things to the necessity of matter without

[25] Prov. iv. 12.

[26] Cf. *e.g.* Arist. Phys. ii. 8.

any intermixture of final causes, seem, so far as we can judge from the remains of their philosophy, much more solid, and to have gone deeper into nature, with regard to physical causes, than the philosophy of Aristotle or Plato; and this only because they never meddled with final causes, which the others were perpetually inculcating. Though in this respect Aristotle is more culpable than Plato, as banishing God,[27] the fountain of final causes, and substituting

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[27] From the text it must not be judged that Aristotle invested nature with the general powers usually attributed to a divine intelligence, in designing and executing her various ends with wisdom and precision, but only that he regarded nature as an active and intelligent principle performing her agencies by means palpable to herself, yet according to the laws and faculties conferred upon her by the prime mover of things. The Spinozist principle which the text attributes to the Stagyrite has been understood by many critics of the sensational school to intimate that Aristotle was of their way of thinking, though the idea of an independent material intelligence is expressly contradicted by numerous passages in his Metaphysics. In book xii. chap. 5, of the works which go under this name, the principal being is held to exclude the idea of matter from his nature: *ἔτι τοίννν ταύτας δεῖ οὐσίας εἶναι ἄνευ ὕλης· ἀϊδίους γὰρ δεῖ· κ.τ.λ.*; and (ibid. 8) *τὸ δέ τι ἦν εἶναι οὐκ ἔχει ὕλην τὸ πρῶτον· ἐντελέχεια γάρ.* In chap. 7 he affirms this principle to be spirit—*ἀρχὴ ἡ νόησις*; that matter cannot move of itself, but needs the action of an exterior agent—*οὐ γὰρ ἡ γε ὕλη κινήσει αὐτὴ ἑαυτὴν, ἀλλὰ τεκτονική*· and that this principle must be eternal and active—*Ἀΐδιον καὶ οὐσία καὶ ἐνέργεια οὖσα.* Aristotle further proceeds to show that all other beings are only a species of means transmitting the motion to others which have been communicated to them, but that this primary being, possessing the spring of motion in itself, moves without being moved; illustrating this kind of action by the emotions and deeds that spring from the love, pity, or hatred that agents at rest excite in others. In another place he affirms that this being is not only eternal in duration but immutable in essence, and quite distinct from sensible things: *ὅτι λὰρ ἔστιν οὐσία τις ἀΐδιος καὶ ἀκίνητος κα κεχωρισμένη τῶν αἰσθητῶν, φανερὸν ἐκ τῶν εἰρημένων*· and that heaven and nature hang upon its behests—*ἐκ τοιαύτης ἄρα ἀρχῆς ἤρτηται ὁ οὐρανὸς καὶ ἡ φύσις.* He further shows that life belongs to it by essence, and as the action of intelligence is life, and *vice versâ*, essential action constitutes the eternal life of this being. Aristotle then calls this independent principle God, and assigns to it endless duration: *φαμεν δὲ τὸν ΘΕΟ'Ν εἶναι ζῶον ἀΐδιον ἄριστον.* "It remains," says the Stagyrite, "to determine whether this principle be one or several; but upon this point we need only remember that those who have decided for a plurality have advanced nothing worthy of consideration in support of their belief." *Ἀλλὰ μεμνῆσθαι καὶ τὰς τῶν ἄλλων ἀποφάσεις ὅτι περὶ πλήθους οὐδὲ εἰρήκασιν ὁ τι καὶ σαφὲς εἰπεῖν.* (Ibid. chap. 8.) "For the principle of existence, or the immovable being which is the source of all movement, being pure action, and consequently foreign to matter, is one in reason and number . . . . all the rest is the creation of a mythology invented by politicians to advance the public interest and occupy the attention of mankind." *Τὸ δέ τι ἦν εἶναι οὐκ ἔχει ὕλην τὸ πρῶτον· ἐντελέχεια γάρ.* (Supp. note 1.) *Ἓν μὲν ἄρα καὶ λόγῳ καὶ ἀριθμῷ τὸ πρῶτον κινοῦν ἀκίνητον.* (Ibid. chap. 8.) *Τὰ δὲ λοιπὰ μυθικῶς ἤδη προσήχθη πρὸς τὴν πειθὼ τῶν πολλῶν καὶ πρὸς τὴν εἰς τοὺς νόμους καὶ τὸ σύμφερον χρῆσιν.* (Ibid.)—*Ed.*

nature in his stead; and, at the same time, receiving final causes through his affection to logic, not theology.

These final causes, however, are not false, or unworthy of inquiry into metaphysics, but their excursion into the limits of physical causes hath made a great devastation in that province; otherwise, when contained within their own bounds, they are not repugnant to physical causes; for the cause, that "the hairs of the eyelids are to preserve the sight," is no way contradictory to this, that "pilosity is incident to the orifices of moisture"—"Muscosi fontes," etc.;[28] nor does the cause which assigns the firmness of hides in beasts to a protection against the injuries of extreme weather, militate against the other cause, which attributes the firmness to the contraction of the pores on the exterior of the skin, through cold and deprivation of air; and so of the rest: these two kinds of causes agreeing excellently together; the one expressing the intention, and the other the consequence only.

Nor does this call Divine Providence in question, but rather highly confirms and exalts it; for as he is a greater politician, who can make others the instruments of his will, without acquainting them with his designs, than he who discloses himself to those he employs; so the wisdom of God appears more wondrous, when nature intends one thing, and Providence draws out another, than if the characters of Providence were stamped upon all the schemes of matter and natural motions. So Aristotle had no need of a God, after having once impregnated nature with final causes, and laid it down that "nature does nothing in vain; always obtains her ends when obstacles are removed,"[29] etc. But Democritus and Epicurus, when they advanced their atoms, were thus far tolerated by some, but when they asserted the fabric of all things to be raised by a fortuitous concourse of these atoms, without the help of mind, they became universally ridiculous. So far are physical causes from drawing

[28] Virg. Eclogues, vii. 45.

[29] Aristotle on the Heavens, 1.

men off from God and Providence, that, on the contrary, the philosophers employed in discovering them can find no rest, but by flying to God or Providence at last.

CHAPTER V

Division of the Practical Branch of Natural Philosophy into Mechanics and Magic (Experimental Philosophy), which correspond to the Speculative Division—Mechanics to Physics, and Magic to Metaphysics. The word Magic cleared from False Interpretation. Appendix to Active Science twofold; viz., an Inventory of Human Helps and a Catalogue of Things of Multifarious Use

THE practical doctrine of nature we likewise necessarily divide into two parts, corresponding to those of speculative; for physics, or the inquiry of efficient and material causes produces mechanics; and metaphysics, the inquiry of forms, produces magic; while the inquiry of final causes is a barren thing, or as a virgin consecrated to God. We here understand that mechanics which is coupled with physical causes; for besides the bare effective or empirical mechanics, which has no dependence on physics, and belongs to natural history, there is another not absolutely operative, and yet not strictly philosophical. For all discoveries of works either had their rise from accident, and so were handed down from age to age, or else were sought by design; and the latter were either discovered by the light of causes and axioms, or acquired by extending, transferring, or compounding some former inventions, which is a thing more ingenious and sagacious than philosophical. But the mechanics here understood is that treated by Aristotle promiscuously, by Hero in his Pneumatics, by that very diligent writer in metallics, George Agricola, and by numerous others in particular subjects: so that we have no omission to note in this point only that the miscellaneous mechanics, after the example of Aristotle, should have been more carefully continued by the moderns, especially with

regard to such contrivances whose causes are more obscure, or their effects more noble; whereas the writers upon these subjects hitherto have only coasted along the shore—"premendo littus iniquum."[1] And it appears to us that scarce anything in nature can be fundamentally discovered, either by accident, experimental attempts, or the light of physical causes, but only by the discovery of forms.[2] Since, therefore, we have set down as wanting that part of metaphysics which treats of forms, it follows that natural magic, which is relative to it, must also be wanting.

We here understand magic in its ancient and honorable sense—among the Persians it stood for a sublimer wisdom, or a knowledge of the relations of universal nature, as may be observed in the title of those kings who came from the East to adore Christ. And in the same sense we would have it signify that science, which leads to the knowledge of hidden forms, for producing great effects, and by joining agents to patients setting the capital works of nature to view. The common natural magic found in books gives us only some childish and superstitious traditions and observations of the sympathies and antipathies of things, or occult and specific properties, which are usually intermixed with many trifling experiments, admired rather for their disguise than for themselves; but as to the truth of nature, this differs from the science we propose as much as the romances of Arthur of Britain, Hugh of Bordeaux, or other imaginary heroes, do from the Commentaries of Cæsar in truth of narration. Cæsar in reality performed greater things, though not by romantic means, than such fabulous heroes are feigned to do. This kind of learning is well represented by the fable of Ixion,[3] who, thinking to enjoy Juno, the goddess of power, embraced a cloud, and thence produced centaurs and chimæras; for so those who,

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[1] Hor. Odes, b. ii. ode x. 3.

[2] Bacon means by forms general laws which co-operate with certain agents in producing the qualities of bodies.—*Shaw.*

[3] Pind. Pyth. ii. 21.

with a hot and impotent desire, are carried to such things as they see only through the fumes and clouds of imagination, instead of producing works, beget nothing but vain hopes and monstrous opinions. This degenerate natural magic has also an effect like certain sleepy medicines which procure pleasing dreams; for so it first lays the understanding asleep, by introducing specific properties and occult virtues—whence men are no longer attentive to the discovery of real causes, but rest satisfied in such indolent and weak opinions; and thus it insinuates numberless pleasing fictions, like so many dreams.

And here we may properly observe, that those sciences which depend too much upon fancy and faith, as this degenerate magic, alchemy and astrology, have their means and their theory more monstrous than their end and action. The conversion of quicksilver into gold is hard to conceive, though it may much more probably be effected by a man acquainted with the nature of gravity, color, malleability, fixedness, volatility, the principles of metals and menstruums, than by one who is ignorant of these natures, by the bare projection of a few grains of the elixir. The same may be understood of the prolongation of youth or retarding of old age, which may more rationally be expected by dietary, regimen, bathings, anointing and proper medicines, directed by an accurate knowledge of the human frame, the nature of rarefaction, sustention, assimilation and the reciprocal action of the mind upon the body, than by a few drops or scruples of some precious liquor or quintessence. But men are so headstrong and notional, as not only to promise themselves things impossible, but also hope to obtain the most difficult ends without labor or exertion.

This practical doctrine of nature requires two appendages of very great consequence. The first is, that an inventory be made of the stock of mankind, containing their whole possessions and fortunes, whether proceeding from nature or art, with the addition also of things formerly known, but now lost; so that he who goes upon new discoveries may

have a knowledge of what has already been done. This inventory will be the more artificial and useful, if it also contain things of every kind, which, according to common opinion, are impossible; as likewise such as seemed next to impossible, yet have been effected, the one to whet the human invention, and the other to direct it, so that from these optatives and potentials actives may the more readily be deduced.

The second thing is, that a calendar be made of such experiments as are most extensively useful, and that lead to the discovery of others. For example, the experiment of artificial freezing, by means of ice and bay salt, is of infinite extent, and discovers a secret method of condensation of great service to mankind; fire is ready at hand for rarefaction, but the means of condensation are wanted. And it would greatly shorten the way to discoveries, to have a particular catalogue of these leading experiments.

CHAPTER VI

The Great Appendix of Natural Philosophy both Speculative and Practical. Mathematics. Its Proper Position not among the Substantial Sciences, but in their Appendix. Mathematics divided into Pure and Mixed

IT WAS well observed by Aristotle, that physics and mathematics produce practice, or mechanics;[1] therefore as we have treated both the speculative and practical part of the doctrine of nature we should also consider mathematics as an auxiliary science to both, which being revived into philosophy, comes in as a third part after physics and metaphysics. But upon due recollection, if we designed it as a substantial and principal science, it were more agreeable to method and the nature of the thing to make it a part of metaphysics. For quantity, the subject of mathematics applied to matter, is as the dose of nature,

[1] Metaphysics, i. and xi.

and productive of numerous effects in natural things, and therefore ought to be reckoned among essential forms. And so much did the power of figures and numbers prevail with the ancients, that Democritus chiefly placed the principles of the variety of things in the figures of their atoms;[2] and Pythagoras asserted that the nature of things consisted of numbers.[3] Thus much is true, that of natural forms, such as we understand them, quantity is the most abstracted and separable from matter; and for this reason it has been more carefully cultivated and examined into by mankind than any other forms, which are all of them more immersed in matter. For, as to the great disadvantage of the sciences, it is natural for men's minds to delight more in the open fields of generals, than in the inclosures of particulars, nothing is found more agreeable than mathematics, which fully gratifies this appetite of expatiating and ranging at large. But as we regard not only truth and order, but also the benefits and advantages of mankind, it seems best, since mathematics is of great use in physics, metaphysics, mechanics and magics, to make it an appendage or auxiliary to them all. And this we are in some measure obliged to do, from the fondness and towering notions of mathematicians, who would have their science preside over physics. It is a strange fatality, that mathematics and logic, which ought to be but handmaids to physics, should boast their certainty before it, and even exercise dominion against it. But the place and dignity of this science is a secondary consideration with regard to the thing itself.

Mathematics is either pure or mixed. To the pure belong the sciences employed about quantity, wholly abstracted from matter and physical axioms. This has two parts—geometry and arithmetic; the one regarding continued, and the other discrete quantity. These two sciences have been cultivated with very great subtilty and application; but in plain geometry there has nothing considerable been added

[2] Laertius, Life of Democritus.

[3] Lamblicus, Life of Pythagoras.

to the labors of Euclid, though he lived many ages since. The doctrine of solids has not been prosecuted and extended equal to its use and excellency, neither by the ancients nor the moderns; and in arithmetic there is still wanting a sufficient variety of short and commodious methods of calculation, especially with regard to progressions, whose use in physics is very considerable.[4] Neither is algebra brought to perfection. As for the Pythagorical and mystical arithmetic, which began to be recovered from Proclus,[5] and certain remains of Euclid, it is a speculative excursion, the mind having this misfortune, that when it proves unequal to solid and useful things, it spends itself upon such as are unprofitable.

Mixed mathematics has for its subject axioms and the

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[4] In nature no two beings exist perfectly equal, and the same being cannot retain its qualities unchanged for an instant of time together. In the universe everything moves in a constant progression and series, and it probably was the presentiment of this truth that led the greatest mathematicians after Bacon's time to turn nearly all their attention to this department of mathematics. Beyond the analogy, however, there is nothing in these phenomena which has any relation with the reality of things; nor have any philosophers since Flud's day ever dealt with them except as pure conditional verities. With data sufficiently determinate, we may approach the solution of any question to which they refer; but if these facts are not given, the problem must remain unresolved. The mathematician may draw consequences; but it is not allowed him to form principles, and if he attempt to apply figures to any hypothesis not warranted by facts, he must be content with the fate of the Samian who constructed the world out of arithmetic, and has been rewarded by the derision of ages for his pains.

No part of learning has perhaps been more cultivated since this author wrote than mathematics, as every other science, or the body of philosophy itself, seems rendered mathematical. The doctrine of solids has been improved by several; the shorter ways of calculation here noted as deficient are in a great measure supplied by the invention of logarithms. Algebra has been so far improved and applied as to rival, or almost prejudice, the ancient geometry; add to this the new discoveries of the Method of Fluxions, the Method of Tangents, the Doctrine of Infinites, the Squaring of Curves, etc. For the general system of mathematical learning, see "Wolfii Elementa Matheseos Universæ," in two volumes 4to, printed at Halle in the year 1715; or for a more cursory view, Father Castel's "Mathématique Universelle," published in the year 1731; but for the history of mathematics, see Vossius "De Universæ Matheseos Natura et Constitutione"; the "Almagest" of Ricciolus; Morhof's "Polyhist. Mathemat."; and Wolfius's "Commentatio de Scriptis Mathematicis," at the end of the second volume of his "Elementa Matheseos Universæ;" "Montucla's "Hist. Math.;" and De la Croix's "Analysis of Infinites."—*Ed.*

[5] He ought to have said from Iamblicus. Proclus was, like himself, totally ignorant even of the little mathematical learning extant in his day.—*Ed.*

parts of physics, and considers quantity so far as may be assisting to illustrate, demonstrate, and actuate those; for without the help of mathematics many parts of nature could neither be sufficiently comprehended, clearly demonstrated, nor dexterously fitted for use. And of this kind are perspective, music, astronomy, cosmography, architecture, and mechanics. In mixed mathematics we at present find no entire parts deficient, but foretell there will be many found hereafter, if men are not wanting to themselves; for if physics be daily improving, and drawing out new axioms, it will continually be wanting fresh assistances from mathematics; so that the parts of mixed mathematics must gradually grow more numerous.

We have now gone through the physical sciences, and marked out the waste ground in them. If, however, we have departed from the ancient and received opinions, and arrayed opponents against us, we have not affected contradiction, and therefore will not enter into the lists of contention. If we have spoken the truth,

"Non canimus surdis; respondent omnia sylvæ,"[6]—

the voice of nature will cry it up, though the voice of man should cry it down; and as Alexander Borgia was wont to say of the expedition of the French against Naples, that they came with chalk in their hands to mark up their lodgings, and not with weapons to fight, so we prefer that entry of truth which comes peaceably, when the minds of men capable of lodging so great a guest are signed as it were with chalk, than that which comes with pugnacity, and forces its way by contentions and controversies. Wherefore, having gone through the two parts of philosophy that relate to God and to Nature, we come to the third, which is man himself.

[6] Virg. Eclogues, x. 8.

FOURTH BOOK

CHAPTER I

Division of the Knowledge of Man into Human and Civil Philosophy. Human Philosophy divided into the Doctrine of the Body and Soul. The Construction of one General Science, including the Nature and State of Man. The latter divided into the Doctrine of the Human Person and the Connection of the Soul with the Body. Division of the Doctrine of the Person of Man into that of his Miseries and Prerogatives. Division of the Relations between the Soul and the Body into the Doctrines of Indications and Impressions. Physiognomy and the Interpretation of Dreams assigned to the Doctrine of Indications.

IF ANY man, excellent king, shall assault or wound me for any of these precepts, let him know that he infringes the code of military honor; for in addition to being under the gracious protection of your Majesty, I do not begin the fight, but am only one of those trumpeters of whom Homer speaks—

Χαίρετε κήρυκες Διὸς ἄγγελοι, ἠδὲ καὶ ἀνδρῶν—[1]

who pass inviolate even between enraged armies. Nor does our trumpet summon men to tear one another in frenzied combat, but rather to conclude a peace, that they who are now divided may direct their united forces against nature herself; and by taking her high towers and dismantling her fortified holds, enlarge as far as God will permit the borders of man's dominion. We now come to the knowledge of ourselves, whither we are directed by the ancients,[2] which merits a closer examination, since the knowledge of himself is to man the end and time of the sciences, of which nature only forms a portion. And here we must admonish mankind, that all divisions of the sciences are to be under-

[1] Iliad, i. 334.

[2] Plato's Alcibiades.

stood and employed, so as only to mark out and distinguish, not tear, separate, or make any solution of continuity in their body;[3] the contrary practice having rendered particular sciences barren, empty, and erroneous, while they are not fed, supported, and kept right by their common parent. Thus we find Cicero complaining of Socrates, that he first disjoined philosophy from rhetoric, which is thence become a frothy, talkative art.[4] And it is likewise evident, that although the opinion of Copernicus about the earth's rotation cannot be confuted by astronomical principles, because it agrees with phenomena, yet it may easily be exploded by natural philosophy. In like manner the art of medicine, without the assistance of natural philosophy, differs but little from empiricism.

The doctrine of man divides itself into two parts, or into human and civil philosophy, as it considers man separate, or joined in society. Human philosophy consists in the sciences that regard the body, and those that regard the soul of man. But before we descend to a more particular distribution, it is proper to make one general science of the nature and state of man, which certainly deserves to be freed from the rest, and reduced to a science by itself. And this will consist of such things as are common both to the body and the soul. It may, likewise, be divided into two parts; viz., according to the individual nature of man, and the connection of the soul and body. The former we call the doctrine of the person of man, and the other the doctrine of union. All which, being common and mixed matters, cannot be separately referred to the sciences that regard the body, nor to those that regard the soul.

The doctrine of the human person principally consists in two things: the consideration of the miseries of mankind, and its prerogatives or excellencies. There are many writings, both philosophical and theological, that elegantly and copiously bewail the human miseries, and it is an agreeable

[3] Seneca's Epistles, § 89.

[4] De Oratore.

and wholesome topic; but the prerogatives of mankind are not hitherto described. Pindar, in his praise of Hiero, says, with his usual elegance, that he cropped the tops of every virtue;[5] and methinks it would greatly contribute to the encouragement and honor of mankind, to have these tops, or utmost extents of human nature, collected from faithful history: I mean the greatest length whereto human nature of itself has ever gone, in the several endowments of body and mind. Thus it is said of Cæsar,[6] that he could dictate to five amanuenses at once. We read, also, of the ancient rhetoricians, as Protagoras and Gorgias; and of the ancient philosophers, as Callisthenes, Possidonius, and Carneades, who could with eloquence and copiousness dispute offhand, on either side of an argument,[7] which shows the power of the mind to advantage. So does, also, what Cicero relates of his master Archias, viz., that he could make extempore a large number of excellent verses upon the common transactions of life. It is a great honor to the memory, that Cyrus or Scipio could call so many thousands of men by their names.[8] Nor are the victories gained in the moral virtues less signal than those of the intellectual faculties. What an example of patience is that of Anaxarchus, who, when put to the torture, bit off his own tongue, and spit it in the tyrant's face! Nor, to come to our own times, is that a less example of scorn of suffering, which the murderer of the prince of Orange displayed in the midst of his tortures. This Burgundian, though scourged with iron thongs and torn with red-hot pincers, did not heave a sigh; and when a broken fragment of the scaffold fell on the head of one of the bystanders, he, even girt around with flames, could not repress his laughter. We have many instances of great serenity and composure of mind at the time of death, as particularly in the centurion mentioned by Tacitus, who

[5] Pindar, Olymp. i. The triumphs of men, and the summits of human nature.

[6] Suetonius's Life. [7] Quintilian's Institutes, iii., and Laertius's Lives.

[8] Xenophon's Cyropædia, v.; and Quintilian's Institutes, xi.

being bid by his executioner to stretch out his neck, valiantly replied, "I would thou wouldst strike as strongly."[9] John, duke of Saxony,[10] while playing at chess, received the order for his execution the following day; whereupon, turning round to one that stood by him, he said, with a smile, "Judge whether so far I am not the winner of the game. For as soon as I am dead, he," pointing to his antagonist, "will say that the game was his own." Sir Thomas More, the day before his execution, being waited upon by his barber, to know if he would have his hair off, refused it; with this answer, that "the king and he had a dispute about his head, and till that were ended he would bestow no cost upon it." And even when he had laid his head upon the block, he raised himself again a little, and gently putting his long beard aside, said, "This surely has not offended the king." By these examples it will appear that the miracles of human nature, and the utmost powers and faculties, both of mind and body, are what we would have collected into a volume, that should be a kind of register of human triumphs. And with regard to such a work, we commend the design of Valerius Maximus and Pliny, but not their care and choice.

The doctrine of union, or of the common tie of soul and body, has two parts: for as, in all alliances, there is mutual intelligence and mutual offices, so the union of the mind and body requires a description of the manner wherein they discover, and act upon each other by notices, or indication and impression. The description by indication has produced two arts of prediction: the one honored with the inquiry of Aristotle, and the other with that of Hippocrates. And though later ages have debased these arts with superstitious and fantastical mixtures, yet, when purged and truly restored, they have a solid foundation in nature, and use in life. The first of these is physiognomy, which,

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[9] Annals, xv. 67.

[10] Meteren, History of the Civil Wars in the Netherlands.

by the lineaments of the body, discovers the dispositions of the mind; the second is the interpretation of natural dreams, which, from the agitations of the mind, discovers the state and dispositions of the body. I find the former deficient in one part; for though Aristotle has, with great ingenuity and diligence, treated the structure of the body at rest, he dropped the consideration of it in motion or gesture,[11] which is no less subject to the observations of art, and more useful than the other. For the lineaments of the body show the general inclinations and dispositions of the mind, while the motions of the face, and the gestures of the other parts, not only do the same, but also express the present disposition and inclination: for, if I may use one of your Majesty's most forcible and elegant expressions, "as the tongue applies to the ear, so does gesture to the eye." And this is well known to many subtile and designing persons, who watchfully observe the countenance and gestures of others, and value themselves for their talent of turning such discoveries to their own advantage; and it must be acknowledged an excellent way of discovering dissimulation in others, and of admonishing men to choose proper times and opportunities for their addresses, which is no small part of civil prudence. A work upon this doctrine of gesture would not only prove useful in particular cases, but serve as a general rule; for all men laugh, weep, blush, frown, etc., alike: and this holds of nearly all the more subtile motions. But for chiromancy, it is absolutely a vain thing, and unworthy to be mentioned among those we are now treating.

The interpretation of natural dreams has been much labored; but mixed with numerous extravagances. We shall here only observe of it, that at present it stands not upon its best foundation; which is, that where the same thing happens from an internal cause, as also usually happens from an external one, there the external action passes

[11] Bacon's memory here fails him; for Aristotle in his Physiognomia Corporis in Motu, has treated the matter elaborately, though without going much into detail.—*Ed.*

into a dream. Thus the stomach may be oppressed by a gross internal vapor, as well as by an external weight; whence those who have the nightmare dream that a weight is laid upon them, with a great concurrence of circumstances. So, again, the viscera being equally tossed by the agitation of the waves at sea, as by a collection of wind in the hypochondria, hence melancholy persons frequently dream of sailing and tossing upon the waters; and instances of this kind are numerous.

The second part of the doctrine of union, which we call impression, is not yet reduced to an art; and but occasionally mentioned by writers. This also has two parts: as considering, 1st, how, and to what degree, the humors and constitution of the body may affect the soul, or act upon it; and 2d, how, and to what degree, the passions and apprehensions of the soul may affect and work upon the body. The first of these we sometimes find touched in medicine; but it has strangely insinuated itself into religion. Physicians prescribe remedies for the diseases of the mind, viz., madness, melancholy, etc., as also to cheer the spirits, strengthen the memory, etc.; but for diet, choice of meats and drinks, washings, and other observances relating to the body, they are found immoderately in the sect of the Pythagoreans, the Manichean heresy, and the law of Mahomet. There are, also, numerous and strict ordinances in the ceremonial law, prohibiting the eating of blood and fat, and distinguishing the unclean animals from the clean for food.[12] Even the Christian religion, though it has thrown off the veil of ceremonies, still retains the use of fasting, abstinence, and other things that regard the subjection and humiliation of the body; as things not merely ritual, but advantageous. The root of all these ordinances, besides the ceremony and exercise of obedience, is, that the soul should sympathize and suffer with the body. And if any man of weaker judgment thinks that such macerations ques-

[12] Deut. xii.

tion the immortality, or derogate from the sovereignty of the soul, let him find an answer in the instances, either of an infant in its mother's womb, which shares in the vicissitudes, and yet is distinct from its mother's body, or of monarchs, who, though in possession of absolute power, are frequently influenced and swayed by their servants.

The other part, which considers the operations of the soul upon the body, has likewise been received into medicine; for every prudent physician regards the accidents of the mind as a principal thing in his cures, that greatly promote or hinder the effects of all other remedies. But one particular has been hitherto slightly touched, or not well examined, as its usefulness and abstruse nature require; viz., how far a fixed and riveted imagination may alter the body of the imaginant; for though this has a manifest power to hurt, it does not follow, it has the same to relieve: no more than because an air may be so pestilent as suddenly to destroy, another air should be so wholesome as suddenly to recover. This would be an inquiry of noble use; but, as Socrates would say, it requires a Delian diver, for it is deep plunged.[13]

But among these doctrines of union, or consent of soul and body, there is none more necessary than an inquiry into the proper seat and habitation of each faculty of the soul in the body and its organs. Some, indeed, have prosecuted this subject; but all usually delivered upon it is either controverted or slightly examined, so as to require more pains and accuracy. The opinion of Plato, which seats the understanding in the brain, courage in the heart, and sensuality in the liver, should neither be totally rejected nor fondly received.[14]

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[13] Laertius' Life.
[14] Plato's Timæus, and Aristotle on the Generation of Animals.

CHAPTER II

Division of the Knowledge of the Human Body into the Medicinal, Cosmetic, Athletic, and the Voluptuary Arts. Division of Medicine into Three Functions: viz., the Preservation of Health, the Cure of Diseases, and the Prolongation of Life. The last distinct from the two former.

THE doctrine of the human body divides itself according to the perfections of the body, whereto it is subservient. These perfections are four: viz., 1st, health; 2d, comeliness; 3d, strength; and 4th, pleasure: to which correspond as relatives: 1st, the arts of medicine; 2d, beautifying; 3d, gymnastics; and 4th, the art of elegance, which Tacitus calls eruditum luxum.[1] Medicine is a noble art, and honorably descended, according to the poets, who make Apollo the primary god, and his son Æsculapius, whom they also deify, the first professor thereof: for as, in natural things, the sun is the author and fountain of life, so the physician, who preserves life, seems a second origin thereof. But medicine receives far greater honor from the works of our Saviour, who was physician both to soul and body, and made the latter the standing subject of his miracles, as the soul was the constant subject of his doctrine.

Of all the things that nature has created, the human body is most capable of relief, though this relief be the most liable to error. For as the subtilty and variety of the subject affords many opportunities of cure, so likewise a great facility of mistake. And, therefore, as this art, especially at present, stands among the most conjectural ones, so the inquiry into it is to be placed among the most subtile and difficult. Neither are we so senseless as to imagine, with Paracelsus and the alchemists, that there are to be

[1] Annals, xvi. 18.

found in man's body definite analogies to all the variety of specific natures in the world, perverting very impertinently that emblem of the ancients, that man was a microcosm or model of the whole world, to countenance their idle fancies. Of all natural bodies, we find none so variously compounded as the human: vegetables are nourished by earth and water; brutes by herbs and fruits; but man feeds upon the flesh of living creatures, herbs, grain, fruits, different juices and liquors; and these all prepared, preserved, dressed, and mixed in endless variety. Besides, the way of living among other creatures is more simple, and the affections that act upon the body fewer and more uniform; but man in his habitation, his exercises, passions, etc., undergoes numberless changes. So that it is evident that the body of man is more fermented, compounded, and organized, than any other natural substance; the soul, on the other side, is the simplest, as is well expressed—

"—— purumque reliquit
Æthereum sensum, atque auraï simplicis ignem;"[2]—

so that we need not marvel that the soul so placed enjoys no rest, since it is out of its place: "Motus rerum extra locum est rapidus, placidus in loco."[3] This variable and subtile composition, and fabric of the human body, makes it like a kind of curious musical instrument, easily disordered; and therefore, the poets justly joined music and medicine in Apollo; because the office of medicine is to tune the curious organ of the human body, and reduce it to harmony.

The subject being so variable has rendered the art more conjectural, and left the more room for imposture. Other arts and sciences are judged of by their power and ability, and not by success or events. The lawyer is judged by the ability of his pleading, not the issue of the cause; the pilot, by directing his course, and not by the fortune of the voyage; while the physician and statesman have no particular

[2] Virg. Æneid, vi. 746.

[3] Arist. on the Heavens.

act that clearly demonstrates their ability, but are principally censured by the event, which is very unjust: for who can tell, if a patient die or recover, or a state fall into decay, whether the evil is brought about by art or by accident? Whence imposture is frequently extolled, and virtue decried. Nay, the weakness and credulity of men is such, that they often prefer a mountebank, or a cunning woman, to a learned physician. The poets were clear-sighted in discerning this folly, when they made Æsculapius and Circe brother and sister, and both children of Apollo, as in the verses—

> "Ille repertorem medicinæ talis et artis,
> Fulmine Phœbigenam Stygias detrusit ad undas":

and similarly of Circe, daughter of the sun—

> "Dives inaccessis ubi Solis filia lucis
> Urit odoratam nocturna in lumina cedrum." [4]

For in all times, witches, old women, and impostors, have, in the vulgar opinion, stood competitors with physicians. And hence physicians say to themselves, in the words of Solomon, "If it befall to me, as befalleth to the fools, why should I labor to be more wise?" [5] And, therefore, one cannot greatly blame them, that they commonly study some other art, or science, more than their profession. Hence, we find among them poets, antiquaries, critics, politicians, divines, and in each more knowing than in medicine. Nor does this fall out, because as a certain declaimer against physicians suggests,' being so often in contact with loathsome spectacles, that they seize the first hour of leisure to draw their minds from such contemplations. For as they are men—"Nihil humani à se alienum putent"—no doubt, because they find that mediocrity and excellency in their own art makes no difference in profit or reputation: for men's impatience of diseases, the solicitations of friends,

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[4] Æneid, vii. 772, 11. [5] Eccles. ii. 15. [6] Agrippa, Scientia Vana.

the sweetness of life, and the inducement of hope, make them depend upon physicians with all their defects. But when this is seriously considered, it turns rather to the reproach than the excuse of physicians, who ought not hence to despair, but to use greater diligence. For we see what a power the subtilty of the understanding has over the variety both of the matter and form of things. There is nothing more variable than men's faces, yet we can remember infinite distinctions of them; and a painter with a few colors, the practice of the hand and eye, and help of the imagination, could imitate thousands if brought before him. As variable as voices are, yet we can easily distinguish them in different persons, and a mimic will express them to the life. Though the sounds of words differ so greatly, yet men can reduce them to a few simple letters. And certainly it is not the insufficiency or incapacity of the mind, but the remoteness of the object that causes these perplexities and distrusts in the sciences: for as the sense is apt to mistake at great distances, but not near at hand, so is the understanding. Men commonly take a view of nature as from a remote eminence, and are too much amused with generalities: whereas, if they would descend, and approach nearer to particulars, and more exactly and considerately examine into things themselves, they might make more solid and useful discoveries. The remedy of this error, therefore, is to quicken or strengthen the organ, and thus to approach the object. No doubt, therefore, if physicians, leaving generalities for a while, and suspending their assent, would advance toward nature, they might become masters of that art of which the poet speaks—

> "Et quoniam variant morbi, variabimus artes
> Mille mali species mille salutis erunt." [7]

They should the rather endeavor this, because the philosophies whereon physicians, whether methodists or chemists,

[7] Ovid, Remedia Amoris, 525.

depend, are trifling, and because medicine, not founded on philosophy, is a weak thing. Therefore, as too extensive generals, though true, do not bring men home to action, there is more danger in such generals as are false in themselves and seduce instead of directing the mind. Medicine, therefore, has been rather professed than labored, and yet more labored than advanced, as the pains bestowed thereon were rather circular than progressive; for I find great repetition, and but little new matter, in the writers of physic.

We divide medicine into three parts, or offices: viz., 1st the preservation of health; 2d, the cure of diseases; and 3d, the prolongation of life. For this last part, physicians seem to think it no capital part of medicine, but confound it with the other two; as supposing, that if diseases be prevented, or cured after invasion, long life must follow of course. But, then, they do not consider that both preservation and cure regard only diseases, and such prolongation of life as is intercepted by them: whence the means of spinning out the full thread of life, or preventing, for a season, that kind of death which gradually steals upon the body by simple resolution, and the wasting of age, is a subject that no physician has treated suitably to its merit. Let none imagine we are here repealing the decrees of fate and Providence, by establishing a new office of medicine; for, doubtless, Providence alike dispenses all kinds of deaths, whether they proceed from violence, diseases, or the course and period of age; yet without excluding the use of remedies and preventions, for art and industry do not here overrule, but administer to nature and fate.

Many have unskilfully written upon the preservation of health, particularly by attributing too much to the choice, and too little to the quantity of meats. As to quantity, they, like the moral philosophers, highly commend moderation; whereas, both fasting changed to custom, and full feeding, where a man is used to it, are better preservatives of health than those mediocrities they recommend, which commonly dispirit nature, and unfit her to bear excess, or

want, upon occasion. And for the several exercises, which greatly conduce to the preservation of health, no physician has well distinguished or observed them, though there be scarce any tendency to a disease, that may not be corrected by some appropriate exercise. Thus bowling is suited to the diseases of the kidneys, shooting with the long bow to those of the lungs, walking and riding to those of the stomach, etc.

Great pains have been bestowed upon the cure of diseases, but to small purpose. This part comprehends the knowledge of the diseases incident to the human body, together with their causes, symptoms and cures. In this second office of medicine there are many deficiencies. And first, we may note the discontinuance of that useful method of Hippocrates,[8] in writing narratives of particular cures with diligence and exactness, containing the nature, the cure, and event of the distemper. And this remarkable precedent of one accounted the father of his art, need not to be backed with examples derived from other arts, as from the prudent practice of the lawyers, who religiously enter down the more eminent cases and new decisions, the better to prepare and direct themselves in future. This continuation, therefore, of medicinal reports we find deficient, especially in forms of an entire body, digested with proper care and judgment. But we do not mean, that this world should extend to every common case that happens every day, which were an infinite labor, and to little purpose; nor yet to exclude all but prodigies and wonders, as several have done: for many things are new in their manner and circumstances, which are not new in their kind; and he who looks attentively will find many particulars worthy of observation, in what seems vulgar.

So in anatomy, the general parts of the human body are diligently observed, and even to niceness: but as to the variety found in different bodies, here the diligence of phy-

[8] Narrationes Medicales.

sicians fails. And, therefore, though simple anatomy has been fully and clearly handled, yet comparative anatomy is deficient. For anatomists have carefully examined into all the parts, their consistencies, figures and situations; but pass over the different figure and state of those parts in different persons. The reason of this defect I take to be, that the former inquiry may terminate upon seeing two or three bodies dissected; but the other being comparative and casual, requires attentive and strict application to many different dissections: besides, the first is a subject wherein learned anatomists may show themselves to their audience; but the other a rigorous knowledge, to be acquired only by silent and long experience. And no doubt but the internal parts, for variety and proportions, are little inferior to the external; and that hearts, livers and stomachs, are as different in men, as foreheads, noses and ears. And in these differences of the internal parts are often found the immediate causes of many diseases, which physicians not observing, sometimes unjustly accuse the humors, when the fault lies only in the mechanic structure of a part. And in such diseases it is in vain to use alternatives, as the case admits not of being altered by them, but must be affected, accommodated, or palliated by a regimen and familiar medicines.

Again, comparative anatomy requires accurate observations upon all the humors, and the marks and impressions of diseases in different bodies upon dissection; for the humors are commonly passed over in anatomy, as loathsome and excrementitious things; whereas it is highly useful and necessary to note their nature and the various kinds that may sometimes be found in the human body, in what cavities they principally lodge, and with what advantage, disadvantage and the like. So the marks and impressions of diseases, and the changes and devastations they bring upon the internal parts, are to be diligently observed in different dissections; viz., imposthumes, ulcerations, solutions of continuity, putrefactions, corrosions, consumptions, contractions, extensions, convulsions, luxations, dislocations, ob-

structions, repletions, tumors; and preternatural excrescences, as stones, carnosities, wens, worms, etc., all which should be very carefully examined, and orderly digested in the comparative anatomy we speak of; and the experiments of several physicians be here collected and compared together. But this variety of accidents, is by anatomists either slightly touched or else passed over in silence.

That defect in anatomy, owing to its not having been practiced upon live bodies, needs not be spoken to, the thing itself being odious, cruel and justly condemned by Celsus;[9] yet the observation of the ancients is true, that many subtile pores, passages and perforations appear not upon dissection, because they are closed and concealed in dead bodies, that might be open and manifest in live ones. Wherefore, if we would consult the good of mankind, without being guilty of cruelty, this anatomy of live creatures should be entirely deserted or left to the casual inspection of chirurgeons, or may be sufficiently performed upon living brutes, notwithstanding the dissimilitude between their parts and those of men, so as to answer the design, provided it be done with judgment.

Physicians, likewise, when they inquire into diseases, find so many which they judge incurable, either from their first appearance, or after a certain period, that the proscriptions of Sylla and the Triumvirate were trifling to the proscriptions of the physicians, by which, with an unjust sentence, they deliver men over to death; numbers whereof, however, escape with less difficulty than under the Roman proscriptions. A work, therefore, is wanting upon the cures of reputed incurable diseases, that physicians of eminence and resolution may be encouraged and excited to pursue this matter as far as the nature of things will permit; since to pronounce diseases incurable, is to establish negligence and carelessness, as it were by a law, and screen ignorance from reproach.

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[9] De Re Medica, i. 5.

And further, we esteem it the office of a physician to mitigate the pains and tortures of diseases, as well as to restore health; and this not only when such a mitigation, as of a dangerous symptom, may conduce to recovery; but also, when there being no further hopes of recovery, it can only serve to make the passage out of life more calm and easy. For that complacency in death, which Augustus Cæsar so much desired, is no small felicity.[10] This was also observed in the death of Antoninus Pius, who seemed not so much to die as to fall into a deep and pleasing sleep. And it is delivered of Epicurus, that he procured himself this easy departure; for after his disease was judged desperate, he intoxicated himself with wine, and died in that condition, which gave rise to the epigram:

"Hinc Stygias ebrius transit aquas." [11]

But the physicians of our times make a scruple of attending the patient after the disease is thought past cure, though, in my judgment, if they were not wanting to their own profession and to humanity itself, they should here give their attendance to improve their skill, and make the dying person depart with greater ease and tranquillity. We therefore set down as deficient an inquiry after a method of relieving the agonies of the dying, calling it by the name of euthanasia exteriori, to distinguish it from the internal composure, procured to the soul in death.

Again, we generally find this deficiency in the cures of diseases, that though the present physicians tolerably pursue the general intentions of cures, yet they have no particular medicines, which, by a specific property, regard particular diseases; for they lose the benefit of traditions and approved experience by their authoritative procedure in adding, taking away, and changing the ingredients of their receipts at pleasure, after the manner of apothecaries substituting one thing for another, and thus haughtily com-

[10] Suetonius' Life Aug. Cæs. 100. [11] Laertius' Life Epic. x. § 15.

manding medicine, so that medicine can no longer command the disease. For except Venice treacle, mithridate, diascordium, the confection of alkermes, and a few more, they commonly tie themselves strictly to no certain receipts: the other salable preparations of the shops being in readiness, rather for general purposes than accommodated to any particular cures; for they do not principally regard some one disease, but have a general virtue of opening obstructions, promoting concoction, etc. And hence it chiefly proceeds, that empirics and women are often more successful in their cures than learned physicians, because the former keep strictly and invariably to the use of experienced medicines, without altering their compositions. I remember a famous Jew physician in England would say, "Your European physicians are indeed men of learning, but they know nothing of particular cures for diseases." And he would sometimes jest a little irreverently, and say, "Our physicians were like bishops, that had the keys of binding and loosing, but no more." To be serious; it might be of great consequence if some physicians, eminent for learning and practice, would compile a work of approved and experienced medicines in particular diseases. For though one might speciously pretend, that a learned physician should rather suit his medicines occasionally, as the constitution of the patient, his age, customs, the seasons, etc., require, than rest upon any certain prescriptions; yet this is a fallacious opinion that underrates experience and overrates human judgment. And as those persons in the Roman state were the most serviceable, who being either consuls, favored the people, or tribunes, and inclined to the senate; so are those the best physicians, who being either learned, duly value the traditions of experience; or men of eminent practice, that do not despise methods and the general principles of the art. But if medicines require, at any time, to be qualified, this may rather be done in the vehicles than in the body of the medicine, where nothing should be altered without apparent necessity. Therefore, this part of physic which treats of

authentic and positive remedies we note as deficient; but the business of supplying it is to be undertaken with great judgment, and as by a committee of physicians chosen for that purpose.

And for the preparation of medicines; it seems strange, especially as mineral ones have been so celebrated by chemists, though safer for external than internal use, that nobody has hitherto attempted any artificial imitations of natural baths and medicinal springs, while it is acknowledged that these receive their virtues from the mineral veins through which they pass; and especially since human industry can, by certain separations, discover with what kind of minerals such waters are impregnated, as whether by sulphur, vitriol, iron, etc. And if these natural impregnations of waters are reducible to artificial compositions, it would then be in the power of art to make more kinds of them occasionally, and at the same time to regulate their temperature at pleasure. This part, therefore, of medicine, concerning the artificial imitation of natural baths and springs, we set down as deficient, and recommend as an easy as well as useful undertaking.

The last deficiency we shall mention seems to us of great importance; viz., that the methods of cure in use are too short to effect anything that is difficult or very considerable. For it is rather vain and flattering, than just and rational, to expect that any medicine should be so effectual, or so successful, as by the sole use thereof to work any great cure. It must be a powerful discourse, which, though often repeated, should correct any deep-rooted and inveterate vice of the mind. Such miracles are not to be expected; but the things of greatest efficacy in nature, are order, perseverance, and an artificial change of applications, which, though they require exact judgment to prescribe, and precise observance to follow, yet this is amply recompensed by the great effects they produce. To see the daily labors of physicians in their visits, consultations, and prescriptions, one would think that they diligently pursued the cure, and

went directly in a certain beaten track about it; but whoever looks attentively into their prescriptions and directions, will find, that the most of what they do is full of uncertainty, wavering, and irresolution, without any certain view or foreknowledge of the course of the cure. Whereas they should from the first, after having fully and perfectly discovered the disease, choose and resolve upon some regular process or series of cure, and not depart from it without sufficient reason. Thus physicians should know, for example, that perhaps three or four remedies rightly prescribed in an inveterate disease, and taken in due order, and at due distances of time, may perform a cure; and yet the same remedies taken independently of each other, in an inverted order, or not at stated periods, might prove absolutely prejudicial. Though we mean not, that every scrupulous and superstitious method of cure should be esteemed the best, but that the way should be as exact as it is confined and difficult. And this part of medicine we note as deficient, under the name of the physicians' clew or directory. And these are the things wanting in the doctrine of medicine, for the cure of diseases; but there still remains one thing more, and of greater use than all the rest; viz., a genuine and active natural philosophy, whereon to build the science of physic.

We make the third part of medicine regard the prolongation of life: this is a new part, and deficient, though the most noble of all; for if it may be supplied, medicine will not then be wholly versed in sordid cures, nor physicians be honored only for necessity, but as dispensers of the greatest earthly happiness that could well be conferred on mortals; for though the world be but as a wilderness to a Christian travelling through it to the promised land, yet it would be an instance of the divine favor, that our clothing, that is, our bodies, should be little worn while we sojourn here. And as this is a capital part of physic, and as we note it for deficient, we shall lay down some directions about it.

And first, no writer extant upon this subject has made

any great or useful discovery therein. Aristotle,[12] indeed, has left us a short memoir, wherein there are some admonitions after his manner, which he supposes to be all that can be said of the matter; but the moderns have here written so weakly and superstitiously, that the subject itself, through their vanity, is reputed vain and senseless. 2. The very intentions of physicians upon this head are of no validity, but rather lead from the point than direct to it. For they talk as if death consisted in a destitution of heat and moisture, and therefore that natural heat should be comforted, and radical moisture cherished; as if the work were to be effected by broths, lettuce, and mallows; or again, by spices, generous wines, spirits, or chemical oils; all which rather do hurt than good. 3. We admonish mankind to cease their trifling, and not weakly imagine that such a great work as retarding the course of nature can be effected by a morning's draught, the use of any costly medicines, pearls, or aurum potabile itself; but be assured, that the prolongation of life is a laborious work, that requires many kinds of remedies, and a proper continuation and intermixture thereof; for it were stupidity to expect, that what was never yet done, should be effected, otherwise than by means hitherto unattempted. 4. Lastly, we admonish them rightly to observe and distinguish between what conduces to health, and what to a long life; for some things, though they exhilarate the spirits, strengthen the faculties, and prevent diseases, are yet destructive to life, and, without sickness, bring on a wasting old age; while there are others which prolong life and prevent decay, though not to be used without danger to health; so that when employed for the prolongation of life, such inconveniences must be guarded against, as might otherwise happen upon using them.

Things seem to us preservable either in their own substance or by repair; in their own substance, as a fly, or an

[12] De Longitudine et Novitate Vitæ.

ant, in amber; a flower, an apple, etc., in conservatories of snow; or a corps of balsam; by repair, as in flame and mechanic engines. He who attempts to prolong life, must practice both these methods together; for separate, their force is less. The human body must be preserved as bodies inanimate are; again, as flame; and lastly, in some measure as machines are preserved. There are, therefore, three intentions for the prolongation of life; viz., 1, to hinder waste; 2, secure a good repair; and 3, to renew what begins to decay. I. Waste is caused by two depredations; viz., that of the internal spirit, and that of the external air; and both are prevented two ways; viz., by making these agents less predatory, or the patients, that is the juices of the body, less apt to be preyed on. The spirit is rendered less predatory, if either its substance be condensed; as, 1, by the use of opiates, preparations of nitre, and in contristation; or, 2, if it be lessened in quantity, as by fasting and diet; and 3, if it be moderated in its motion, as by rest and quiet. The ambient air becomes less predatory, either when it is less heated by the sun, as in the cold countries, caves, hills; or kept from the body, as by close skins, the plumage of birds, and the use of oil and unguents, without spices. The juices of the body are rendered less subject to be preyed on, if made more hardy, or more oleaginous, as by a rough astringent diet, living in the cold, robust exercises, the use of certain mineral baths, sweet things, and abstaining from such as are salt or acid; but especially by means of such drinks as consist of subtile parts, yet without acrimony or tartness. II. Repair is procured by nourishment, and nourishment is promoted four ways: 1, by forwarding internal concoction, which drives forth the nourishment, as by medicines that invigorate the principal viscera; 2, by exciting the external parts to attract the nourishment, as by exercise, proper frictions, unctions, and baths; 3, by preparing the aliment itself, that it may more easily insinuate, and require less digestion; as in many artificial ways of preparing meats, drinks, bread, and reducing the effects

of these three to one: again, 4, by the last act of assimilation, as in seasonable sleep and external applications. III. The renovation of parts worn out is performed two ways; either by softening the habit of the body, as with supplying applications, in the way of bath, plaster, or unction, of such qualities as to insinuate into the parts, but extract nothing from them; or by discharging the old, and substituting new moisture, as in seasonable and repeated purging, bleeding, and attenuating diets, which restore the bloom of the body.

Several rules for the conduct of the work are derivable from these indications; but three of the more principal are the following. And first, prolongation of life is rather to be expected from stated diets, than from any common regimen of food, or the virtues of particular medicines; for those things that have force enough to turn back the course of nature, are commonly too violent to be compounded into a medicine, much more to be mixed with the ordinary food, and must therefore be administered orderly, regularly, and at set periods. 2. We next lay it down as a rule, that the prolongation of life be expected, rather from working upon the spirits, and mollifying the parts, than from the manner of alimentation. For as the human body, and the internal structure thereof, may suffer from three things, viz., the spirits, the parts, and aliments; the way of prolonging life by means of alimentation is tedious, indirect, and winding; but the ways of working upon the spirits and the parts, much shorter; for the spirits are suddenly affected, both by effluvia and the passions, which may work strangely upon them; and the parts also by baths, unguents, or plasters, which will likewise have sudden impressions. 3. Our last precept is, that the softening of the external parts be attempted by such things as are penetrating, astringent, and of the same nature with the body; the latter are readily received and entertained, and properly soften; and penetrating things are as vehicles to those that mollify, and more easily convey, and deeply impress the virtue thereof; while themselves also in some measure operate upon the

parts: but astringents keep in the virtue of them both, and somewhat fix it, and also stop perspiration, which would otherwise be contrary to mollifying, as sending out the moisture; therefore the whole affair is to be effected by these three means used in order and succession, rather than together. Observe only, that it is not the intention of mollifying to nourish the parts externally, but only to render them more capable of nourishment; for dry things are less disposed to assimilate. And so much for the prolongation of life, which we make the third, or a new part of medicine.

The art of decoration, or beautifying, has two parts, civil and effeminate. For cleanliness and decency of the body were always allowed to proceed from moral modesty and reverence; first, toward God, whose creatures we are; next, toward society, wherein we live; and lastly, toward ourselves, whom we ought to reverence still more than others. But false decorations, fucuses, and pigments, deserve the imperfections that constantly attend them; being neither exquisite enough to deceive, nor commodious in application, nor wholesome in their use. And it is much that this depraved custom of painting the face should so long escape the penal laws both of the church and state, which have been very severe against luxury in apparel and effeminate trimming of the hair. We read of Jezebel, that she painted her face; but not so of Esther and Judith.

We take gymnastics, in a large sense, to signify whatever relates to the hability whereto the human body may be brought, whether of activity or suffering. Activity has two parts, strength and swiftness; so has endurance or suffering, viz., with regard to natural wants, and fortitude under torture. Of all these, we have many remarkable instances in the practices of rope-dancers, the hardy lives of savages, surprising strength of lunatics, and the constancy and resolution of many under exquisite torments. Any other faculties that fall not within the former division, as diving, or the power of continuing long under water without respiration, and the like, we refer them also to gymnas-

tics. And here, though the things themselves are common, yet the philosophy and causes thereof are usually neglected, perhaps because men are persuaded that such masteries over nature are only obtainable either from a peculiar and natural disposition in some men, which comes not under rules, or by a constant custom from childhood, which is rather imposed than taught. And though this be not altogether true, yet it is here of small consequence to note any deficiency, for the Olympic games are long since ceased, and a mediocrity in these things is sufficient for use, while excellence in them serves commonly but for mercenary show.

The arts of elegance are divided with respect to the two senses of sight and hearing. Painting particularly delights the eye; so do numerous other magnificent arts, relating to buildings, gardens, apparel, vessels, gems, etc. Music pleases the ear with great variety and apparatus of sounds, voices, strings, and instruments; and anciently water-organs were esteemed as great masterpieces in this art, though now grown into disuse. The arts which relate to the eye and ear, are, above the rest, accounted liberal: these two senses being the more pure, and the sciences thereof more learned, as having mathematics to attend them. The one also has some relation to the memory and demonstrations; the other, to manners and the passions of the mind. The pleasures of the other senses, and the arts employed about them, are in less repute, as approaching nearer to sensuality than magnificence. Unguents, perfumes, the furniture of the table, but principally incitements to lust, should rather be censured than taught. And it has been well observed, that while states were in their increase, military arts flourished; when at their heights, the liberal arts; but when upon their decline, the arts of luxury. With the arts of pleasure, we join also the jocular arts: for the deception of the senses may be reckoned one of their delights.

And now, as so many things require to be considered with relation to the human body, viz., the parts, humors, functions, faculties, accidents, etc., since we ought to have

an entire doctrine of the body of man, which should comprehend them all; yet lest arts should be thus too much multiplied, or their ancient limits too much disordered, we receive into the system of medicine, the doctrines of the parts, functions, and humors of the body; respiration, sleep, generation; the fœtus, gestation in the womb; growth, puberty, baldness, fatness, and the like; though these do not properly belong either to the preservation of health, the cure of diseases, or the prolongation of life, but because the human body is, in every respect, the subject of medicine. But for voluntary motion and sense, we refer them to the doctrine of the soul as two principal parts thereof. And thus we conclude the doctrine of the body, which is but as a tabernacle to the soul.

CHAPTER III

Division of the Doctrine of the Human Soul into that of the Inspired Essence and the Knowledge of the Sensible or Produced Soul. Second Division of the same philosophy into the Doctrine of the Substance and the Faculties of the Soul. The Use and Objects of the latter. Two Appendices to the Doctrine of the Faculties of the Soul: viz., Natural Divination and Fascination (Mesmerism). The Faculties of the Sensible Soul divided into those of Motion and Sense

WE NOW come to the doctrine of the human soul, from whose treasures all other doctrines are derived. It has two parts—the one treating of the rational soul, which is divine, the other of the irrational soul, which we have in common with brutes. Two different emanations of souls are manifest in the first creation, the one proceeding from the breath of God, the other from the elements. As to the primitive emanation of the rational soul, the Scripture says, God formed man of the dust of the earth, and breathed into his nostrils the breath of life; but the generation of the irrational and brutal soul was in these words—Let the water bring forth;

let the earth bring forth. And this irrational soul in man is only an instrument to the rational one, and has the same origin in us as in brutes, viz., the dust of the earth; for it is not said, God formed the body of man of the dust of the earth, but God formed man, that is, the whole man, the breath of life excepted, of the dust of the earth. We will, therefore, style the first part of the general doctrine of the human soul the doctrine of the inspired substance, and the other part the doctrine of the sensitive or produced soul. But as we are here treating wholly of philosophy, we would not have borrowed this division from divinity, had it not also agreed with the principles of philosophy. For there are many excellences of the human soul above the souls of brutes, manifest even to those who philosophize only according to sense. And wherever so many and such great excellences are found, a specific difference should always be made. We do not, therefore, approve that confused and promiscuous manner of the philosophers in treating the functions of the soul, as if the soul of man differed in degree rather than species from the soul of brutes, as the sun differs from the stars, or gold from other metals.

There may also be another division of the general doctrine of the human soul into the doctrine of the substance and faculties of the soul, and that of the use and objects of the faculties. And these two divisions being premised, we come to particulars.

The doctrine of the inspired substance, as also of the substance of the rational soul, comprehends several inquiries with relation to its nature, as whether the soul be native or adventitious, separable or inseparable, mortal or immortal; how far it is subject to the laws of matter, how far not, and the like. But the points of this kind, though they might be more thoroughly sifted in philosophy than hitherto they have been, yet in the end they must be turned over to religion, for determination and decision; otherwise they will lie exposed to various errors and illusions of sense. For as the substance of the soul was not, in its creation, extracted

or deduced from the mass of heaven and earth, but immediately inspired by God; and as the laws of heaven and earth are the proper subjects of philosophy, no knowledge of the substance of the rational soul can be had from philosophy, but must be derived from the same Divine inspiration, whence the substance thereof originally proceeded.[1]

But in the doctrine of the sensitive or produced soul, even its substance may be justly inquired into, though this inquiry seems hitherto wanting. For of what significance are the terms of actus ultimus and forma corporis, and such logical trifles, to the knowledge of the soul's substance? The sensitive soul must be allowed a corporeal substance, attenuated by heat and rendered invisible, as a subtile breath or aura, of a flamy and airy nature, having the softness of air in receiving impressions, and the activity of fire in exerting its action, nourished partly by an oily and partly by a watery substance, and diffused through the whole body; but in perfect creatures, residing chiefly in the head, and thence running through the nerves, being fed and recruited by the spirituous blood of the arteries, as Telesius[2] and his follower Donius in some measure have usefully shown. Therefore let this doctrine be more diligently inquired into,[3] because the ignorance of it has produced

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[1] To separate God from human reason, appears to be one of the great aims of one of the modern schools of philosophy, and sometimes the theory has received indirect confirmations from quarters by no means favorable to its advocates. Pascal wrote, "Selon les lumières naturelles, nous sommes incapable de connaître ce que Dieu est." In the edition of this philosopher's works, by Voltaire and Condorcet, the text was enriched with the addition of the phrase, "Ni s'il est;" and the following note appended to the passage, by Voltaire: "Il est étrange que Pascal ait cru qu'on pouvait deviner le péché originel par la raison, et qu'il dise qu'on ne peut connaître par la raison si Dieu est." At this specimen of deistic candor, Condorcet exclaims, in a subsequent note, "How marvellous to behold Voltaire contending with Pascal for the existence of God!"—*Ed.*

[2] Rerum Natura, book 5.

[3] This inquiry is greatly embroiled by the moderns; some seeking the soul all over the body, some in the blood, some in the animal spirits, some in the heart, some in the ventricles of the brain, and some, with Descartes, in the glandula pinealis. M. Petit wrote a curious piece relating to this subject, entitled "De Animâ Corpori coextensâ"; printed at Paris, 1665. See also "Hobokenius de Sede Animæ in Corpore Humano."—*Ed.*

superstitious and very corrupt opinions, that greatly lessen the dignity of the human soul—such as the transmigration and lustration of souls through certain periods of years, and the too near relation in all respects of the human soul to the soul of brutes. For this soul in brutes is a principal soul, whereof their body is the organ; but in man it is itself an organ of the rational soul, and may rather be called by the name spirit than soul.

The faculties of the soul are well known;[4] viz., the understanding, reason, imagination, memory, appetite, will, and all those wherewith logic and ethics are concerned. In the doctrine of the soul the origin of these faculties must be physically treated, as they may be innate and adhering to the soul, but their uses and objects are referred to other arts; and in this part nothing extraordinary has hitherto appeared, though we do not indeed report it as wanting. This part of the faculties of the soul has also two appendages, which as they have yet been handled, rather present us with smoke than any clear flame of truth—one being the doctrine of natural divination, the other of fascination.

Divination has been anciently and properly divided into artificial and natural. The artificial draws its predictions by reasoning from the indication of signs; but the natural predicts from the internal foresight of the mind, without the assistance of signs. Artificial divination is of two kinds—one arguing from causes, the other only from experiments

[4] The text is indistinct. We are not told whether the faculties here enumerated belong to the produced or to the rational soul. Though from the language of the text, and the order of inquiry, the former appears to be the most probable opinion: yet we do not see how the origin of conscience to which they refer can be physically treated, or how the same substance can unite appetite, and the principle to which it is almost invariably opposed. To obviate such difficulties, Aristotle and Plato made a similar distinction between the rational and the sensitive principle in man, and assigned reason, imagination and memory to the one, while they restricted appetite and sensational feeling to the other. Bacon, however, seems to place all these faculties in the sensitive soul, and leaves the inspired substance a mere breath or aura, without either faculties or functions. By thus implying the cogitative power of matter, he has in some measure countenanced the dangerous belief of the corruptibility of the human soul and its expiration with the body; at least, sceptics have not been slow in putting this interpretation upon his doctrine.—*Ed.*

conducted by blind authority. The latter is generally superstitious. Such were the heathen doctrines about the inspection of entrails, the flight of birds, etc.; and the formal astrology of the Chaldeans was little better. Both kinds of artificial divination spread themselves into various sciences. The astrologer has his predictions from the aspect of the stars; the physician, too, has his, as to death, recovery, and the subsequent symptoms of diseases, from the urine, pulse, aspect of the patient, etc.; the politician also is not without his predictions—"O urbem venalem, et cito perituram si emptorem invenerit!"[5]—the event of which prophecy happened soon after, and was first accomplished in Sylla and again in Cæsar. But the predictions of this kind being not to our present purpose, we refer them to their proper arts, and shall here only treat of natural divination, proceeding from the internal power of the soul.

This also is of two kinds—the one native, the other by influx. The native rests upon this supposition, that the mind abstracted or collected in itself, and not diffused in the organs of the body, has from the natural power of its own essence some foreknowledge of future things; and this appears chiefly in sleep, ecstasies, and the near approach of death; but more rarely in waking, or when the body is in health and strength. And this state of the mind is commonly procured or promoted by abstinence, and principally such things as withdraw the mind from exercising the functions of the body, that it may thus enjoy its own nature without any external interruption. But divination by influx is grounded upon another supposition, viz., that the mind, as a mirror, may receive a secondary illumination from the foreknowledge of God and spirits, whereto likewise the above-mentioned state and regimen of the body are conducive. For the same abstraction of the mind causes it more powerfully to use its own nature, and renders it more susceptive of divine influxes, only in divinations by influx

[5] "O city set to sale, whose destruction is at hand, if it find a purchaser!" uttered by Jugurtha, on leaving Rome. Sallust's Jugurtha, 35.

the soul is seized with a kind of rapture, and as it were impatience of the Deity's presence, which the ancients called by the name of sacred fury, whereas in native divination the soul is rather at its ease and free.

Fascination is the power and intense act of the imagination upon the body of another. And here the school of Paracelsus, and the pretenders to natural magic, abusively so called, have almost made the force and apprehension of the imagination equal to the power of faith, and capable of working miracles; others keeping nearer to truth, and attentively considering the secret energies and impressions of things, the irradiations of the senses, the transmissions of thought from one to another, and the conveyances of magnetic virtues, are of opinion that impressions, conveyances, and communications, might be made from spirit to spirit, because spirit is of all things the most powerful in operation and easiest to work on; whence many opinions have spread abroad of master spirits, of men ominous and unlucky, of the strokes of love, envy, and the like. And this is attended with the inquiry, how the imagination may be heightened and fortified; for if a strong imagination has such power, it is worth knowing by what means to exalt and raise it.[6]

But here a palliative or defence of a great part of ceremonial magic would slily and indirectly insinuate itself, under a specious pretence that ceremonies, characters, charms, gesticulations, amulets, and the like, have not their power from any tacit or binding contract with evil spirits, but that these serve only to strengthen and raise the imagination of such as use them, in the same manner as images have prevailed in religion for fixing men's minds in the contemplation of things and raising the devotion in prayer. But allowing the force of imagination to be great,

[6] The ways of working upon or with the imagination, are touched by the author, in his "Sylva Sylvarum," under the article Imagination. See more to this purpose in "Descartes upon the Passions," "Casaubon upon Enthusiasm," Father Malebranche's "Recherche de la Vérité," and Lord Shaftesbury's "Letter upon Enthusiasm."—*Shaw.*

and that ceremonies do raise and strengthen it; allowing also, that ceremonies may be sincerely used to that end, as a physical remedy, without the least design of thereby procuring the assistance of spirits; yet ought they still to be held unlawful, because they oppose and contradict that Divine sentence passed upon man for sin: "In the sweat of thy brow thou shalt eat thy bread." For this kind of magic offers those excellent fruits which God had ordained should be procured by labor at the price of a few easy and slight observances.

There are two other doctrines which principally regard the faculties of the inferior or sensitive soul, as chiefly communicating with the organs of the body—the one is of voluntary motion, the other of sense and sensibility. The former has been but superficially inquired into, and one entire part of it is almost wholly neglected. The office and proper structure of the nerves, muscles, etc., requisite to muscular motion, what parts of the body rest while others move, and how the imagination acts as director of this motion, so far than when it drops the image whereto the motion tended, the motion itself presently ceases—as in walking, if another serious thought come across our mind, we presently stand still; with many other such subtilties—have long ago been observed and scrutinized. But how the compressions, dilatations, and agitations of the spirit, which, doubtless, is the spring of motion, should guide and rule the corporeal and gross mass of the parts, has not yet been diligently searched into and treated. And no wonder, since the sensitive soul itself has been hitherto taken for a principle of motion and a function, rather than a substance.[7] But as it is now known to be material, it be-

[7] The original is, *pro entelechia et functione quadam*, alluding to the technical term entelechy, which Aristotle introduced into his Physics (iii. 1) to denote the act through which any substance exercises its power. The rational soul was never taken in the sense of a simple act, or entelechy, as Bacon would insinuate, but was affirmed even by Aristotle, who introduced the phrase, to be a certain power apart and distinguished from the rest of the human system, as the eternal is distinguishable from the incorruptible. His words are: περὶ δὲ

comes necessary to inquire by what efforts so subtile and minute a breath can put such gross and solid bodies in motion. Therefore, as this part is deficient, let due inquiry be made concerning it.

Sense and sensibility have been much more fully and diligently inquired into, as well in general treatises upon the subject as in particular arts; viz., perspective, music, etc.; but how justly, is not to the present intention. And, therefore, we cannot note them as deficient; yet there are two excellent parts wanting in this doctrine: one upon the difference of perception and sense, and the other upon the form of light. In treating of sense and sensibility, philosophers should have premised the difference between perception and sense, as the foundation of the whole: for we find there is a manifest power of perception in most natural bodies, and a kind of appetite to choose what is agreeable, and to avoid what is disagreeable to them. Nor is this meant of the more subtile perceptions only; as when the loadstone attracts iron, or flame flies to petrol, or one drop of water runs into another; or when the rays of light are reflected from a white object, or when animal bodies

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τοῦ νοῦ καὶ τῆς θεωρητικῆς δυνάμεως οὐδέπω φανερόν. Ἀλλ' ἔοικε ψυχῆς γένος ἕτερον εἶναι, καὶ τοῦτο μόνον ἐνδέχεται χωριζεσθαι καθάπερ ἀΐδιον τοῦ φθαρτοῦ (Arist. De An. ii. 2); and as this power is not a simple act, but the effect of a vital substance, possessing the principle of activity virtually in itself, he implies its capability to communicate motion to surrounding bodies even in a state of immobility; *ἴσως γὰρ οὐ μόνον ψεῦδός ἐστι τὸ τὴν οὐσίαν αὐτῆς τοι αὐτὴν εἶναι οἷαν φασὶν οἱ λέγοντες εἶναι τὴν ψυχὴν τὸ κινοῦν αὐτὸ ἢ δυνάμενον κινεῖν· ἀλλ' ἔν τι τῶν ἀδυνάτων τὸ ὑπάρχειν αὐτῇ κίνησιν.* (Arist. ibid. iii. 1.) With regard to the precise meaning of the word entelechy there have been many disputes among the learned. The origin of the term ought to be allowed to indicate its signification; but Aristotle used it in distinct senses, as signifying not only a simple act or function of an unsubstantial quality, but also as the act of a substantial power; and his followers have never hit upon a generic term capable of uniting the two notions. Many have abandoned it as untranslatable. Budæus uses the word efficacia; Cicero paraphrases it as a certain continuous and eternal motion (Tusc. i. 10), which only implies the motion of unsubstantial qualities, to which Bacon confined it. This signification, however, was but the exceptional use of the term, and does not coincide with the general applications of it in the Greek schools. Hermonlaus Barbarus is said to have been so much oppressed with this difficulty of translation, that he consulted the evil spirit by night, entreating to be supplied with a more common and familiar substitute for this word; the mocking fiend, however, suggested only a word equally obscure, and the translator, discontented with this, invented for himself the word perfectibilia.—*Ed.*

assimilate what is proper for them, and reject what is hurtful; or when a sponge attracts water, and expels air, etc.; for in all cases, no one body placed near to another can change that other, or be changed by it, unless a reciprocal perception precede the operation. A body always perceives the passages by which it insinuates; feels the impulse of another body, where it yields thereto; perceives the removal of any body that withheld it, and thereupon recovers itself; perceives the separation of its continuity, and for a time resists it; in fine, perception is diffused through all nature. But air has such an acute perception of heat and cold, as far exceeds the human touch, which yet passes for the measure of heat and cold. This doctrine, therefore, has two defects: one, in that men have generally passed it over untouched, though a noble subject; the other, that they who did attend to it have gone too far, attributed sense to all bodies, and made it almost a sin to pluck a twig from a tree, lest the tree should groan, like Polydorus in Virgil.[8] But they ought carefully to have searched after the difference between perception and sense; not only in comparing sensible with insensible things, in the entire bodies thereof, as those of plants and animals, but also to have observed in the sensible body itself, what should be the cause that so many actions are performed without any sense at all. Why the aliments are digested and discharged, the humors and juices carried up and down in the body; why the heart and pulse beat; why the viscera act as so many workshops, and each performs its respective office; yet all this, and much more, be done without sense. But men have not yet sufficiently found of what nature the action of sense is, and what kind of body, what continuance, what repetitions of the impression are required to cause pain or pleasure. Lastly, they seem totally ignorant of the difference between simple perception and sense, and how far perception may be caused without sense. Nor is this a

[8] Virg. Æneid, iii.

controversy about words, but a matter of great importance. Wherefore let this doctrine be better examined, as a thing of capital, and very extensive use: for the ignorance of some ancient philosophers in this point, so far obscured the light of reason, that they thought there was a soul indifferently infused into all bodies; nor did they conceive how motion of election could be caused without sense, or sense exist without a soul.

That the form of light should not have been duly inquired into, appears a strange oversight, especially as men have bestowed so much pains upon perspective: for neither has this art, nor others afforded any valuable discovery in the subject of light. Its radiations, indeed, are treated, but not its origin; and the ranking of perspective with mathematics has produced this defect, with others of the like nature, because philosophy is thus deserted too soon. Again, the doctrine of light, and the causes thereof, have been almost superstitiously treated in physics, as a subject of a middle nature, between natural and divine; whence certain Platonists would have light prior to matter itself: for they vainly imagined that space was first filled with light, and afterward with body; but the Scriptures plainly say, that the mass of heaven and earth was dark before the creation of light. And as for what is physically delivered upon this subject, and according to sense, it presently descends to radiations, so that very little philosophical inquiry is extant about it. And men ought here to lower their contemplations a little, and inquire into the properties common to all lucid bodies, as this relates to the form of light; how immensely soever the bodies concerned may differ in dignity, as the sun does from rotten wood, or putrefied fish. We should likewise inquire the cause why some things take fire, and when heated throw out light, and others not. Iron, metal, stones, glass, wood, oil, tallow, by fire yield either a flame, or grow red-hot. But water and air, exposed to the most intense heat they are capable of, afford no light, nor so much as shine. That it is not the property of fire

alone to give light; and that water and air are not utter enemies thereto, appear from the dashing of salt water in a dark night, and a hot season, when the small drops of the water, struck off by the motion of the oars in rowing, seem sparkling and luminous. We have the same appearance in the agitated froth of the sea, called sea-lungs. And, indeed, it should be inquired what affinity flame and ignited bodies have with glow-worms, the Luciola, the Indian fly, which casts a light over a whole room; the eyes of certain creatures in the dark; loaf-sugar in scraping or breaking; the sweat of a horse hard ridden, etc. Men have understood so little of this matter, that most imagine the sparks, struck between a flint and steel, to be air in attrition. But since the air ignites not with heat, yet apparently conceives light, whence owls, cats, and many other creatures see in the night (for there is no vision without light), there must be a native light in air; which, though weak and feeble, is proportioned to the visual organs of such creatures, so as to suffice them for sight. The error, as in most other cases, lies here, that men have not deduced the common forms of things from particular instances, which is what we make the proper business of metaphysics. Therefore let inquiry be made into the form and origins of light; and, in the meantime, we set it down as deficient. And so much for the doctrine of the substance of the soul, both rational and sensitive, with its faculties, and the appendages of this doctrine.

FIFTH BOOK

CHAPTER I

Division of the Use and Objects of the Faculties of the Soul into Logic and Ethics. Division of Logic into the Arts of Invention, Judgment, Memory and Tradition.

THE doctrine of the human understanding, and of the human will, excellent king, are like twins; for the purity of illumination, and the freedom of will, began and fell together: nor is there in the universe so intimate a sympathy, as that between truth and goodness. The more shame for men of learning, if in knowledge they are like the winged angels, but in affections like the crawling serpents, having their minds indeed like a mirror; but a mirror foully spotted.

The doctrine of the use and objects of the mental faculties has two parts, well known and generally received; viz., logic and ethics. Logic treats of the understanding and reason, and ethics of the will, appetite, and affections; the one producing resolutions, the other actions. The imaginations, indeed, on both sides, performs the office of agent, or ambassador, and assists alike in the judicial and ministerial capacity. Sense commits all sorts of notions to the imagination, and the reason afterward judges of them. In like manner reason transmits select and approved notions to the imagination before the decree is executed: for imagination always precedes and excites voluntary motion, and is therefore a common instrument both to the reason and the will, only it has two faces: that turned toward reason bearing the effigy of truth; but that toward action the effigy of goodness: yet they are faces:

——"quales decet esse sororum." [1]

[1] Ovid, Metam. ii. 14.

But the imagination is more than a mere messenger; as being invested with, or, at least, usurping no small authority, besides delivering the message. Thus, Aristotle well observes, that the mind has the same command over the body, as the master over the slave; but reason over the imagination, the same that a magistrate has over a free citizen, who may come to rule in his turn.[2] For in matters of faith and religion, the imagination mounts above reason. Not that divine illumination is seated in the imagination, but, as in divine virtues, grace makes use of the motions of the will; so in illumination it makes use of the motions of the imagination; whence religion solicits access to the mind, by similitudes, types, parables, dreams, and visions. Again, the imagination has a considerable sway in persuasion, insinuated by the power of eloquence: for when the mind is soothed, enraged, or any way drawn aside by the artifice of speech, all this is done by raising the imagination; which, now growing unruly, not only insults over, but, in a manner, offers violence to reason, partly by blinding, partly by incensing it. Yet there appears no cause why we should quit our former division: for in general, the imagination does not make the sciences; since even poetry, which has been always attributed to the imagination, should be esteemed rather a play of wit than a science. As for the power of the imagination in natural things, we have already ranged it under the doctrine of the soul; and for its affinity with rhetoric, we refer it to the art of rhetoric.

This part of human philosophy which regards logic, is disagreeable to the taste of many, as appearing to them no other than a net, and a snare of thorny subtilty. For as knowledge is justly called the food of the mind, so in the desire and choice of this food, most men have the appetite of the Israelites in the wilderness, who, weary of manna, as a thin though celestial diet, would have gladly returned to

[2] Aristotle's Politics, i. 5, 6.

the fleshpots: thus generally those sciences relish best that are subjective, and nearer related to flesh and blood; as civil history, morality, politics, whereon men's affections, praises, and fortunes turn, and are employed, while the other dry light offends, and dries up the soft and humid capacities of most men. But if we would rate things according to their real worth, the rational sciences are the keys to all the rest; for as the hand is the instrument of instruments, and the mind the form of forms, so the rational sciences are to be esteemed the art of arts. Nor do they direct only, but also strengthen and confirm: as the use and habit of shooting not only enables one to shoot nearer the mark, but likewise to draw a stronger bow.

The logical arts are four, being divided according to the ends they lead to: for in rational knowledge man endeavors, 1, either to find what he seeks; 2, to judge of what he finds; 3, to retain what he has approved; or 4, to deliver what he has retained: whence there are as many rational arts: viz., 1, the art of inquiry or invention; 2, the art of examination or judging; 3, the art of custody or memory; and 4, the art of elocution or delivery.

CHAPTER II

Division of Invention into the Invention of Arts and Arguments. The former, though the more important of them, is wanting. Division of the Invention of Arts into Literate (Instructed) Experience and a New Method (Novum Organum). An Illustration of Literate Experience.

INVENTION is of two very different kinds: the one of arts and sciences, the other of arguments and discourse. The former I set down as absolutely deficient. And this deficiency appears like that, when, in taking the inventory of an estate, there is set down, in cash, nothing: for as ready money will purchase all other commodities, so this art, if extant, would procure all other arts. And as the immense regions of the West Indies had never been dis-

covered, if the use of the compass had not first been known, it is no wonder that the discovery and advancement of arts has made no greater progress, when the art of inventing and discovering the sciences remains hitherto unknown. That this part of knowledge is wanting, seems clear: for logic professes not, nor pretends to invent, either mechanical or liberal arts, nor to deduce the operations of the one, or the axioms of the other; but only leaves us this instruction in passage, to believe every artist in his own art.[1] Celsus, a wise man, as well as a physician, speaking of the empirical and dogmatical sects of physicians, gravely and ingenuously acknowledges, that medicines and cures were first discovered, and the reasons and causes of them discoursed afterward,[2] not that causes, first derived from the nature of things, gave light to the invention of cures and remedies. And Plato, more than once, observes, that particulars are infinite, that the highest generalities give no certain directions; and, therefore, that the marrow of all sciences, whereby the artist is distinguished from the unskilful workman, consists in middle propositions, which experience has delivered and taught in each particular science.[3] Hence those who write upon the first inventors of things, and the origin of the sciences, rather celebrate chance than art, and bring in beasts, birds, fishes, and serpents, rather than men, as the first teachers of arts.

> "Dictamnum genitrix Cretæa carpit ab Ida,
> Puberibus caulem foliis, et flore comantem
> Purpureo: non illa feris incognita capris
> Gramina, cum tergo volucres hæsere sagittæ." [4]

No wonder, therefore, as the manner of antiquity was to consecrate the inventors of useful things, that the Egyptians, an ancient nation, to which many arts owe their rise, had their temples filled with the images of brutes, and but a few human idols among them.

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[1] See Whately's Intro. § 5, b. iii. (on Fallacies) § 2, and b. iv.; also Arist. Eth. Mag. i. 1–17.

[2] Re Medica, i. 3. [3] The Timæus. [4] Æneid. xii. 412.

"Omnigenûmque Deûm monstra et latrator Anubis
Contra Neptunum et Venerem, contraque Minervam." [5]

And if we should, according to the traditions of the Greeks, ascribe the first invention of arts to men, yet we cannot say that Prometheus studied the invention of fire; or that when he first struck the flint he expected sparks, but that he fell upon it by accident, and, as the poets say, stole it from Jupiter. So that as to the invention of arts, we are rather beholden to the wild goat for chirurgery, to the nightingale for music, to the stork for glysters, to the accidental flying off of a pot's cover for artillery, and, in a word, to chance, or anything else, rather than to logic. Nor does the manner of invention, described by Virgil, differ much from the former; viz., that practice and intent thought by degrees struck out various arts.

"Ut varias usus meditando extunderet artes
Paulatim." [6]

For this is no other than what brutes are capable of, and frequently practice; viz., an intent solicitude about some one thing, and a perpetual exercise thereof, which the necessity of their preservation imposes upon them; for Cicero truly observed, that practice applied wholly to one thing, often conquers both nature and art—"Usus uni rei deditus, et naturam et artem sæpe vincit." [7] And therefore, if it may be said with regard to men, that continued labor and cogent necessity master everything,

——"Labor omnia vincit
Improbus, et duris urgens in rebus egestas;" [8]

so it may be asked with regard to brutes, who taught them instinct,

"Quis expedivit Psittaco suum Χαῖρε ?" [9]

Who taught the raven, in a drought, to drop pebbles into a hollow tree, where she chanced to spy water, that the water

[5] Æneid, viii. 698.
[6] Georg. i. 133.
[7] Oratio pro L. Cor. Balbo, xx.
[8] Virg. Georg. i. 145.
[9] Perseus, Prol. 8.

might rise for her to drink? Who taught the bee to sail through the vast ocean of air, to distant fields, and find the way back to her hive? [10] Who taught the ant to gnaw every grain of corn that she hoards, to prevent its sprouting? And if we observe in Virgil the word extundere, which implies difficulty, and the word paulatim, which imports slowness, this brings us back to the case of the Egyptian gods; since men have hitherto made little use of their rational faculties, and none at all of art, in the investigation of things.

And this assertion, if carefully attended to, is proved from the form of logical induction, for finding and examining the principles of the sciences; which form being absolutely defective and insufficient, is so far from perfecting nature, that it perverts and distorts her. For whoever attentively observes how the ethereal dew of the sciences, like that of which the poet speaks,

"Aërii mellis cœlestia dona," [11]

is gathered (the sciences being extracted from particular examples, whether natural or artificial, as from so many flowers), will find that the mind of its own natural motion makes a better induction than that described by logicians. From a bare enumeration of particulars in the logical manner, where there is no contradictory instance, follows a false conclusion; nor does such an induction infer anything more than probable conjecture. For who will undertake, when the particulars of a man's own knowledge or memory appear only on one side, that something directly opposite shall not lie concealed on the other? as if Samuel should have taken up with the sons of Jesse brought before him, and not have sought David, who was in the field. And to say the truth, as this form of induction is so gross and stupid, it might seem incredible that such acute and subtile geniuses as have been exercised this way, could ever have obtruded

[10] Pliny's Natural History.

[11] Virgil, Georg. iv. 1.

it upon the world, but that they hasted to theories and opinions, and, as it were, disdained to dwell upon particulars; for they have used examples and particular instances but as whifflers to keep the crowd off and make room for their own opinions, without consulting them from the beginning, so as to make a just and mature judgment of the truth of things. And this procedure has, indeed, struck me with an awful and religious wonder, to see men tread the same paths of error both in divine and human inquiries. For as in receiving divine truths men are averse to become as little children, so in the apprehending of human truths, for men to begin to read, and, like children, come back again to the first elements of induction, is reputed a low and contemptible thing.

But, allowing the principles of the sciences might be justly formed by the common induction, or by sense and experience, yet it is certain that the lower axioms cannot, in natural things, be with certainty deduced by syllogism from them. For syllogism reduces propositions to principles by intermediate propositions. And this form, whether of invention or proof, has place in the popular sciences, as ethics, politics, law, etc., and even in divinity, since God has been pleased to accommodate himself to the human capacity; but in physics, where nature is to be caught by works, and not the adversary by argument, truth in this way slips through our fingers, because the subtilty of the operations of nature far exceeds the subtilty of words. So that syllogism thus failing, there is everywhere a necessity for employing a genuine and correct induction, as well in the more general principles, as the inferior propositions. For syllogisms consist of propositions, propositions of words, but words are the signs of notions; wherefore if these notions, which are the souls of words, be unjustly and unsteadily abstracted from things, the whole structure must fall. Nor can any laborious subsequent examination of the consequences of arguments, or the truth of propositions, ever repair the ruin; for the error lies in the first

digestion, which cannot be rectified by the secondary functions of nature.

It was not, therefore, without cause, that many of the ancient philosophers, and some of them eminent in their way, became academics and sceptics, who denied all certainty of human knowledge, and held that the understanding went no further than appearance and probability. It is true, some are of opinion that Socrates, when he declared himself certain of nothing, did it only in the way of irony, and put on the dissimulation of knowledge, that, by renouncing what he certainly knew, he might be thought to know what he was ignorant of. Nor in the latter academy, which Cicero followed, was this opinion held with much reality; but those who excelled in eloquence, commonly chose this sect as the fittest for their purpose, viz., acquiring the reputation of disputing copiously on both sides of the question, thus leaving the high road of truth for private walks of pleasure. Yet it is certain there were some few, both in the old and new academies, but more among the sceptics, who held this principle of doubting in simplicity and sincerity of heart. But their chief error lay in accusing the perceptions of the senses, and thus plucked up the sciences by their roots. For though the senses often deceive or fail us, yet, when industriously assisted, they may suffice for the sciences, and this not so much by the help of instruments, which also have their use, as of such experiments as may furnish more subtile objects than are perceivable by sense. But they should rather have charged the defects of this kind upon the errors and obstinacy of the mind, which refuses to obey the nature of things; and again, upon corrupt demonstrations, and wrong ways of arguing and concluding, erroneously inferred from the perceptions of sense. And this we say, not to detract from the human mind, or as if the work were to be deserted, but that proper assistances may be procured and administered to the understanding, whereby to conquer the difficulties of things and the obscurities of nature. What we endeavor

is, that the mind, by the help of art, may become equal to things, and to find a certain art of indication or direction, to disclose and bring other arts to light, together with their axioms and effects. And this art we, upon just ground, report as deficient.

This art of indication has two parts; for indication proceeds, 1, from experiment to experiment; or 2, from experiments to axioms, which may again point out new experiments. The former we call learned experience, and the latter the interpretation of nature, Novum Organum, or new machine for the mind. The first, indeed, as was formerly intimated, is not properly an art, or any part of philosophy, but a kind of sagacity; whence we sometimes call it the chase of Pan, borrowing the name from the fable of that god. And as there are three ways of walking, viz., either by feeling out one's way in the dark; or 2, when being dim-sighted, another leads one by the hand; and 3, by directing one's steps by a light: so when a man tries all kinds of experiments without method or order, this is mere groping in the dark; but when he proceeds with some direction and order in his experiments, it is as if he were led by the hand; and this we understand by learned experience: but for the light itself, which is the third way, it must be derived from the Novum Organum.

The design of learned experience, or the chase of Pan, is to show the various ways of making experiments; and as we note it for deficient, and the thing itself is none of the clearest, we will here give some short sketch of the work. The manner of experimenting chiefly consists in the variation, production, translation, inversion, compulsion, application, conjunction, or any other manner of diversifying, or making chance experiments. And all this lies without the limits of any axiom of invention; but the interpretation of nature takes in all the transitions of experiments into axioms, and of axioms into experiments.

Experiments are varied first in the subject, as when a known experiment, having rested in one certain substance,

is tried in another of the like kind; thus the making of paper is hitherto confined to linen, and not applied to silk, unless among the Chinese,[12] nor to hair-stuffs and camblets, nor to cotton and skins; though these three seem to be more unfit for the purpose, and so should be tried in mixture rather than separate. Again, engrafting is practiced in fruit trees, but rarely in wild ones; yet an elm grafted upon an elm is said to produce great foliage for shade. Incision likewise in flowers is very rare, though now the experiment begins to be made upon musk-roses, which are successfully inoculated upon common ones. We also place the variations on the side of the thing among the variations in the matter. Thus we see a scion grafted upon the trunk of a tree thrives better than if set in earth; and why should not onion-seed set in a green onion grow better than when sown in the ground by itself, a root being here substituted for the trunk, so as to make a kind of incision in the root?

An experiment may be varied in the efficient. Thus, as the sun's rays are so contracted by a burning glass, and heightened to such a degree as to fire any combustible matter, may not the rays of the moon, by the same means, be actuated to some small degree of warmth, so as to show whether all the heavenly bodies are potentially hot? and as luminous heats are thus increased by glasses, may not opaque heats, as of stones and metals, before ignition, be increased likewise, or is there not some proportion of light here also? Amber and jet, chafed, attract straws, whence query, if they will not do the same when warmed at the fire?

An experiment may be varied in quantity, wherein very great care is required, as being subject to various errors. For men imagine, that upon increasing the quantity the virtue should increase proportionably; and this they commonly postulate as a mathematical certainty, and yet it is utterly false. Suppose a leaden ball of a pound weight, let

[12] The Chinese also manufacture their paper out of the interior bark of cane.—*Ed.*

fall from a steeple, reaches the earth in ten seconds, will a ball of two pounds, where the power of natural motion, as they call it, should be double, reach it in five? No, they will fall almost in equal times, and not be accelerated according to quantity.[13] Suppose a drachm of sulphur would liquefy half a pound of steel, will, therefore, an ounce of sulphur liquefy four pounds of steel? It does not follow; for the stubbornness of the matter in the patient is more increased by quantity than the activity of the agent.[14] Besides, too much as well as too little may frustrate the effect—thus, in smelting and refining of metals it is a common error to increase the heat of the furnace or the quantity of the flux; but if these exceed a due proportion, they prejudice the operation, because by their force and corrosiveness they turn much of the pure metal into fumes, and carry it off, whence there ensues not only a loss in the metal, but the remaining mass becomes more sluggish and intractable. Men should therefore remember how Æsop's housewife was deceived, who expected that by doubling her feed her hen should lay two eggs a day; but the hen grew fat, and laid none. It is absolutely unsafe to rely upon any natural experiment before proof be made of it, both in a less and a larger quantity.

An experiment is produced two ways; viz., by repetition and extension, the experiment being either repeated or urged to a more subtile thing. It may serve for an example of repetition, that spirit of wine is made of wine by one distillation, and thus becomes much stronger and more

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[13] Because its surface in relation to its solidity is less than the first ball, and consequently encounters less resistance from the air, with respect to the entire quantity of its motion.—*Ed.*

[14] This only happens when the increased content is attended with augmentation of surface. It may be accepted as a principle, that bodies are exposed to the action of external agents in proportion as their surface is extended, an increased size presenting a greater quantity of pores, through which the agent may insinuate itself. As surfaces are only as the squares of their diameters, and the contents increase in the ratio of the cubes of their diameters, it follows that, in the same subject matter, those bodies are more extended in relation to their solidity, which have less bulk, and consequently more liable to the action of external bodies, as Bacon remarks.—*Ed.*

acrid than the wine itself—will likewise spirit of wine proportionally exceed itself in strength by another distillation? But the repetition also of experiments may deceive; thus here the second exaltation does not equal the excess of the first; and frequently, by repeating an experiment after a certain pitch is obtained, nature is so far from going further, that she rather falls back. Judgment, therefore, must be used in this affair. So quicksilver put into melted lead, when it begins to grow cold, will be arrested, and remain no longer fluid; but will the same quicksilver, often served so, become fixed and malleable?

For an example of extension, water made pendulous above, by means of a long glass stem, and dipped into a mixture of wine and water, will separate the water from the wine, the wine gently rising to the top, and the water descending and settling at the bottom. Now, as wine and water, being two different bodies, are separable by this contrivance, may likewise the more subtile parts of wine, which is an entire body, be separated from the more gross by this kind of distillation, performed as it were by gravity, so as to have floating atop a liquor like spirit of wine, or perhaps more subtile? Again, the loadstone draws iron in substance, but will loadstone plunged into a solution of iron attract the iron and cover itself with it? So the magnetic needle applies to the poles of the world; but does it do this after the same course and order that the celestial bodies move? Suppose the needle held at the south point, and then let go, would it now turn to the north by the west or east?[15] Thus gold imbibes quicksilver contiguous to it; but does the gold do this without increasing its own bulk, so as to become a mass specifically heavier than gold? Thus men help their memories by setting up pictures of persons in certain places; but would they obtain the same

[15] This question is impossible to decide, as we are never certain at the moment of the experiment that the needle has not been deflected from the south point, and the slightest imperceptible degree, too fine for human instrument to discover, would render the trial nugatory.—*Ed.*

end if, neglecting their faces, they only imagined the actions or habits of the persons?

An experiment may be transferred three ways; viz., by nature or chance into an art; 2, from one art or practice to another; and, 3, from one part of an art to another. There are innumerable examples of the transferring of experiments from nature or chance to arts, as nearly all the mechanical arts owe their origins to slender beginnings afforded by nature or accident. It is authorized by a proverb, that grapes among grapes ripen sooner. And our cider-makers observe the rule; for they do not stamp and press their apples without laying them on heaps for a time, to ripen by mutual contact, whereby the liquor is prevented from being too tart. So the making of artificial rainbows by the thick sprinkling of little drops of water, is an easy translation from natural rainbows made in a rainy cloud. So the art of distillation might be taken either from the falling of rain and dew, or that homely experiment of boiling water, where drops adhere to the cover of the vessel. Mankind might have been afraid to imitate thunder and lightning by the invention of great guns, had not the chemical monk received the first hint of it by the impetuous discharge and loud report of the cover of his vessel. But if mankind were desirous to search after useful things, they ought attentively, minutely, and on set purpose, to view the workmanship and particular operations of nature, and be continually examining and casting about which of them may be transferred to arts; for nature is the mirror of art.

Nor are there fewer experiments transferable from one art or practice to another, though this be rarely used. For nature lies everywhere obvious to us all, though particular arts are only known to particular artists. Spectacles were invented for weak sights—might not, therefore, an instrument be discovered that, applied to the ears, should help the hearing? Embalming preserves dead bodies—could not, therefore, something of like kind be transferred to medicine, for the preservation of live ones? So the practice of

sealing in wax, cements, and lead, is ancient, and paved the way to the printing on paper, or the art of the press. So in cookery, salt preserves meats better in winter than in summer—might not this be usefully transferred to baths, and the occasional regulation of their temperature? So by late experience salt is found of great efficacy in condensing, by the way of artificial freezing—might not this be transferred to the condensing of metals, since it is found that the aquæ-fortes, composed of salts, dissolve particles of gold out of some lighter metals? So painting refreshes the memory by the image of a thing; and is not this transferred in what they call the art of memory? And let it be observed, in general, that nothing is of greater efficacy in procuring a stock of new and useful inventions, than to have the experiments of numerous mechanic arts known to a single person, or to a few, who might mutually improve each other by conversation; so that by this translation of experiments arts might mutually warm and light up each other, as it were, by an intermixture of rays. For although the rational way, by means of a new machine for the mind, promises much greater things; yet this sagacity, or learned experience, will in the meantime scatter among mankind many matters, which, as so many missive donatives among the ancients, are near at hand.

The transferring of experiments from one part of an art to another differs little from the transferring one art to another. But because some arts are so extensive as to allow of the translation of experiments within themselves, it is proper to mention this kind also, especially as it is of very great moment in some particular arts. Thus it greatly contributes to enlarge the art of medicine to have the experiments of that part which treats of the cures of diseases, transferred to those parts which relate to the preservation of health and the prolongation of life. For if any famous opiate should, in a pestilential distemper, suppress the violent inflammation of the spirits, it might thence seem probable that something of the same kind, rendered familiar

by a due dose, might in good measure check that wasting inflammation which steals on with age.

An experiment is inverted when the contrary of what the experiment shows is proved; for example, heat is increased by burning glasses; but may cold be so too? So heat in diffusing itself rather mounts upward, but cold in diffusing itself rather moves downward. Thus, if an iron rod be heated at one end, then erected upon its heated end, and the hand be applied to the upper part of the rod, the hand will presently be burned; but if the heated end be placed upward and the hand applied below, it will be burned much slower. But if the whole rod were heated, and one end of it wet with snow or a sponge dipped in cold water, would the cold be sooner propagated downward than upward if the sponge were applied below? Again, the rays of the sun are reflected from a white body, but absorbed by a black one. Are shadows also scattered by black and collected by white bodies? We see in a dark place, where light comes in only at a small hole, the images of external objects are received upon white paper, but not upon black.

An experiment is compelled where it is urged or produced to the annihilation or destruction of the power, the prey being only caught in the other chases, but killed in this. Thus the loadstone attracts iron—urge, therefore, the iron, or urge the loadstone, till they attract no longer; for example, if the loadstone were burned, or steeped in aqua-fortis, would it entirely, or only in part, lose its virtue? So if iron were reduced to a crocus, or made into prepared steel, as they call it, or dissolved in aqua-fortis, would the loadstone still attract it? The magnet draws iron through all known mediums—gold, silver, glass, etc. Urge the medium, therefore, and, if possible, find out one that intercepts the virtue. Thus make trial of quicksilver, oil, gums, ignited gold, and such things as have not yet been tried. Again, microscopes have been lately introduced which strangely magnify minute objects; urge the use of them, either by applying them to objects so small that their power

is lost, or so large till it is confounded. Thus, for example, can microscopes clearly discover those things in urine which are not otherwise perceptible? Can they discover any specks or clouds in gems that are perfectly clear and bright to appearance? Can they magnify the motes of the sun, which Democritus mistook for atoms and the principles of things?[16] Will they show a mixed powder of vermilion and ceruse in distinct grains of red and white? Will they magnify larger objects—as the face, the eye, etc.—as much as they do a gnat or a mite, or represent a piece of fine linen open as a net? But we need not insist longer on compulsory experiments, as they do not justly come within the limits of literate experience, but are rather referred to axioms, causes, and the New Organum.

The application of an experiment is no more than an ingenious translation of it to some other experiment of use; for example, all bodies have their own dimensions and gravities. Gold has more gravity and less bulk than silver, and water than wine—hence a useful experiment is derived for discovering what proportion of silver is mixed with gold, or of water with wine, from a knowledge of their measure and weight, which was the grand discovery of Archimedes.[17] Again, as flesh putrefies sooner in some cellars than in others, it were useful to transfer this experiment to the examination of airs, as to their being more or less wholesome to live in, by finding those wherein flesh remains longest unputrefied; and the same experiment is applicable to discover the more wholesome or pestilential seasons of the year. But examples of this kind are endless, and require that men should have their eyes continually turned one while to the nature of things and another while to human uses.

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[16] Epistles of Hippocrates, or Pliny's Nat. History.

[17] The means that Bacon proposes, and to which the chemists still adhere, is the reverse of that of Archimedes. The ancient compared, in his experiment, three bodies of the same weight, but of different volume, while the text advises three bodies of the same volume, but of different weight. This reversion, however, does not affect the result.—*Ed.*

The conjunction of an experiment is a connection and chain of applications, when those things which were not useful single, are made useful by connection; for example, to have roses or fruits come late, the way is to pluck off the early buds, or to lay bare the roots and expose them to the open air, toward the middle of spring; but it is much better to do both together. So ice and nitre separate have a great power of cooling, but a much greater when mixed together. But there may be a fallacy in this obvious affair, as in all cases where axioms are wanting, if the conjunction be made in things that operate by different and, as it were, contrary ways.[18]

As for chance experiments, these are plainly an irrational and wild procedure, when the mind suggests the trial of a thing, not because any reason or experiment persuades it, but only because nothing of the kind has been tried before; yet even here, perhaps, some considerable mystery lies concealed, provided no stone in nature were left unturned; for the capital things of nature generally lie out of the beaten paths, so that even the absurdness of a thing sometimes proves useful. But if reason also be here joined, so as to show that the like experiment never was attempted, and yet that there is great cause why it should be; then this becomes an excellent instrument, and really enters the bosom of nature. For example, in the operation of fire upon natural bodies it has hitherto always happened that either something flies off, as flame and smoke in our common fires, or at least that the parts are locally separated to some distance, as in distillation, where the vapor rises and the fæces are left behind; but no man has hitherto tried close distillation. Yet it seems probable, that if the force of heat may have its action confined in the cavities of a body, without any possibility of loss or escape, this Proteus of matter will be manacled, as it were, and forced to undergo

[18] Such are the compounds of very active substances, which chemists designate neuter: for example, the greater part of salts, as nitre, sea-salt, the salt of Glauber, and generally all those substances composed of an acid united to an alkaline or earthy base.—*Ed.*

numerous transformations, provided only the heat be so moderated and changed as not to break the containing vessel. For this is a kind of natural matrix, where heat has its effect without separating or throwing off the parts of a body. In a true matrix, indeed, there is nourishment supplied; but in point of transmutation the case is the same. And here let none despair or be confounded, if the experiments they attempt should not answer their expectation; for though success be indeed more pleasing, yet failure, frequently, is no less informing; and it must ever be remembered, that experiments of light are more to be desired than experiments of profit. And so much for learned experience, as we call it, which thus appears to be rather a sagacity, or a scenting of nature, as in hunting, than a direct science.[19]

As regards the Novum Organum, we shall state here nothing either summarily or in detail, it being our intention, with the Divine assistance, to devote an entire treatise to that subject, which is more important than all the rest.

CHAPTER III

Division of the Invention of Arguments into Promptuary, or Places of Preparation, and Topical, or Places of Suggestion. The Division of Topics into General and Particular. An Example of Particular Topics afforded by an Inquiry into the Nature of the Qualities of Light and Heavy

THE invention of arguments is not properly an invention; for to invent, is to discover things unknown before, and not to recollect or admit such as are known already. The office and use of this kind of inven-

[19] This section appears to have been little understood even by some eminent men, who censure the scheme of the author, and think that experiments must need be casual, and the human understanding unable to direct and conduct them to useful purposes unless by accident. The misfortune seems to lie here, that few converse so familiarly with nature as to judge what may be done in this way; or how the numerous discoveries of Lord Bacon, Mr. Boyle, Dr. Hook, Sir Isaac Newton, etc., were made. An attentive perusal of the Novum Organum, where this subject is largely prosecuted, will unravel the mystery.—*Shaw.*

tion seems to be no more than dexterously to draw out from the stock of knowledge laid up in the mind such things as make to the present purpose; for one who knows little or nothing of a subject proposed, has no use of topics or places of invention, while he who is provided of suitable matter, will find and produce arguments, without the help of art and such places of invention, though not so readily and commodiously; whence this kind of invention is rather a bare calling to memory, or a suggestion with application, than a real invention. But since the term is already received, it may still be called invention, as the hunting in a park may be called hunting no less than that in the open field. But not to insist upon the word, the scope and the end of the thing itself, is a quick and ready use of our thoughts, rather than any enlargement or increase of them.

There are two methods of procuring a stock of matter for discourse; viz., 1, either by marking out, and indicating the parts wherein a thing is to be searched after, which is what we call the topical way; or 2, by laying up arguments for use, that were composed beforehand, relating to such things as frequently happen and come in dispute; and this we call the promptuary way: but the latter can scarce be called a part of science, as consisting rather in diligence than any artificial learning. Aristotle on this head ingeniously derides the Sophists of his time, saying, they acted like a professed shoemaker, who did not teach the art of shoemaking, but set out a large stock of shoes, of different shapes and sizes.[1] But it might be replied, that the shoemaker who should have no shoes in his shop, and only make them as they were bespoke, would find few customers. Our Saviour speaks far otherwise of divine knowledge, saying, "Therefore every scribe which is instructed into the kingdom of heaven, is like unto a man that is an householder, which brings forth out of his treasure things new and old."[2]

We find also that the ancient rhetoricians gave it in

[1] De Reprehen. Soph. ii. 9.

[2] St. Matt. xiii. 52.

precept to the orators to be always provided of various commonplaces, ready furnished and illustrated with arguments on both sides; as for the intention of the law against the words of the law; for the truth of arguments against testimonies, and vice versa.[3] And Cicero himself, being taught by long experience, roundly asserts, that a diligent and experienced orator should have such things as come into dispute, ready labored and prepared, so as that in pleading there should be no necessity of introducing anything new or occasional, except new names, and some particular circumstances.[4] But as the first opening of the cause has a great effect in preparing the minds of the audience, the exactness of Demosthenes judged it proper to compose beforehand, and have in readiness, several introductions to harangues and speeches;[5] and these examples and authorities may justly overrule the opinion of Aristotle, who would have us change a whole wardrobe for a pair of shears. This promptuary method, therefore, should not be omitted; but as it relates as well to rhetoric as to logic, we shall here touch it but slightly; designing to consider it more fully under rhetoric.[6]

We divide topical inventions into general and particular. The general is so copiously and diligently treated in the common logics, that we need not dwell upon its explanation: we only observe by the way, that this topical method is not only used in argumentation and close conference, but also in contemplation, when we meditate or revolve anything alone. Nor is its office only confined to the suggesting or admonishing us of what should be affirmed or asserted, but also what we should examine or question; a prudent questioning being a kind of half-knowledge; for, as Plato justly observes, a searcher must have some general notion of the thing he searches after, otherwise he could never know it when he had found it;[7]

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[3] De Oratore.
[4] Epistles to Atticus, vi. 16.
[5] The prefaces alluded to are of doubtful authority.
[6] See hereafter, sect. 18.
[7] In Menone, ii. 80.

and, therefore, the more comprehensive and sure our anticipation is, the more direct and short will be the investigation. And hence the same topics which conduce to the close examining into our own understandings, and collecting the notices there treasured up, are likewise assistant in drawing forth our knowledge. Thus, if a person, skilful in the point under question, were at hand, as we might prudently and advantageously consult him upon it; in like manner, we may usefully select and turn over authors and books, to instruct and inform ourselves about those things we are in quest of.

But the particular topical invention is much more conducive to the same purposes, and to be esteemed a highly fertile thing. Some writers have lately mentioned it, but it is by no means treated according to its extent and merit. Not to mention the error and haughtiness which have too long reigned in the schools, and their pursuing with infinite subtilty such things as are obvious, without once touching upon those that lie remote, we receive this topical invention as an extremely useful thing, that affords certain heads of inquiry and investigation appropriated to particular subjects and sciences. These places are certain mixtures of logic and the peculiar matter of each science. It is an idle thing, and shows a narrow mind, to think that the art of discovering the sciences may be invented and proposed in perfection from the beginning, so as to be afterward only exercised and brought into use; for men should be made sensible that the solid and real arts of invention grow up and increase along with inventions themselves; so that when any one first comes to the thorough examination of a science, he should have some useful rules of discovery; but after he has made a considerable progress in the science itself, he may, and ought, to find out new rules of invention, the better to lead him still further. The way here is like walking on a flat, where, after we have gone some length, we not only approach nearer the end of our journey, but also have a clearer view of what remains to be gone of it; so in the

sciences, every step of the way, as it leaves some things behind, also gives us a nearer prospect of those that remain: and as we report this particular topical invention deficient, we think proper to give an example of it in the subject of gravity and levity.

1. Let inquiries be made what kind of bodies are susceptible of the motion of gravity; what of levity; and if there be any of a middle or neutral nature.

2. After the simple inquiry of gravity and levity, proceed to a comparative inquiry; viz., which heavy bodies weigh more, and which less, in the same dimensions; and of like ones, which mount upward the swifter, and which the slower.

3. Inquire what effect the quantity of the body has in the motion of gravity. This at first sight may appear a needless inquiry, because motion may seem proportionable to quantity; but the case is otherwise. For although in scales quantity is equal to the gravity, yet where there is a small resistance, as in the falling of bodies through the air, quantity has but little force to quicken the descent; but twenty pounds of lead, and a single pound, fall nearly in the same time.

4. Inquire whether the quantity of a body may be so increased as that the motion of gravity shall be entirely lost, as in the globe of the earth, which hangs pendulous without falling. Query, therefore, whether other masses may be so large as to sustain themselves? For that bodies should move to the centre of the earth is a fiction; and every mass of matter has an aversion to local motion, till this be overcome by some stronger impulse.

5. Inquire into the effects and nature of resisting mediums, as to their influencing the motion of gravity; for a falling body either penetrates and cuts through the body it meets in its way, or else is stopped by it. If it pass through, there is a penetration, either with a small resistance, as in air, or with a greater, as in water. If it be stopped, it is stopped by an unequal resistance, where

there is a preponderancy, as when wood is laid upon wax; or by an equal resistance, as when water is laid upon water, or wood upon wood of the same kind; which is what the schools pretend, when they idly imagine that bodies do not gravitate in their own places. And all these circumstances alter the motion of gravity; for heavy bodies move after one way in the balance, and after another in falling: and, which may seem strange, after one way in a balance suspended in the air, and after another in a balance plunged in water; after one way in falling through water, and after another when floating upon it.

6. Inquire into the effects of the figure of the descending body, in directing the motion of gravity: suppose of a figure broad and thin, cubical, oblong, round, pyramidal, etc.; and how bodies turn themselves while they remain in the same position as when first let go.

7. Inquire into the effects of the continuation and progression of the fall or descent itself, as to the acquiring a greater impulse or velocity, and in what proportion and to what length this velocity is increased; for the ancients, upon slender consideration, imagined that this motion, being natural, was always upon the increase.

8. Inquire into the effects of distance, or the near approach of a body descending to the earth, so as to fall swifter, slower, or not at all, supposing it were to be out of the earth's sphere of activity, according to Gilbert's opinion; as also the effects of plunging the falling body deeper into the earth, or placing it nearer the surface; for this also varies the motion, as is manifest to those who work in mines.

9. Inquire into the effects of the difference of bodies, through which the motion of gravity is diffused and communicated; and whether it is equally communicated through soft and porous bodies, as through hard and solid ones. Thus if the beam of a scale were one half of wood, and the other half of silver, yet of the same weight; inquire whether this would not make an alteration in the scales: and again,

whether metal laid upon wool, or a blown bladder, would weigh the same as in the naked scale.

10. Inquire into the effects of the distance of a body from the point of suspension in the communication of the motion of gravity; that is, into the earlier or later perception of its inclination or depression: as in scales, where one side of the beam is longer, though of the same weight with the other, whether this inclines the beam; or in siphons, where the longer leg will draw the water, though the shorter, being made wider, contains a greater weight of water.

11. Inquire into the effects of intermixing or coupling a light body and a heavy one, for lessening the gravity of bodies; as in the weight of creatures alive and dead.

12. Inquire into the ascents and descents of the lighter and heavier parts of one entire body: whence curious separations are often made, as in the separation of wine and water, the rising of cream from milk, etc.

13. Inquire what is the line and direction of the motion of gravity, and how far it respects the earth's centre, that is, the mass of the earth; or the centre of its own body, that is, the appetite of its parts. For these centres are properly supposed in demonstrations, but are otherwise unserviceable in nature.

14. Inquire into the comparative motion of gravity, with other motions, or to what motions it yields, and what it exceeds. Thus in the motion they call violent, the motion of gravity is withheld for a time; and so when a large weight of iron is raised by a little loadstone, the motion of gravity gives way to the motion of sympathy.

15. Inquire concerning the motion of the air, whether it rises upward, or be as it were neutral, which is not easy to be discovered without some accurate experiments; for the rising up of air at the bottom of water, rather proceeds from a resistance of the water, than the motion of the air, since the same also happens in wood. But air mixed with air makes no discovery; for air in air may seem as light, as water in water seems heavy: but in bubbles, which are air

surrounded with a thin pellicle of water, it stands still for a time.

16. Let the bounds of levity be inquired after; for though men make the centre of the earth the centre of gravity, they will perhaps hardly make the ultimate convexity of the heavens the boundary of levity; but rather, perhaps, as heavy bodies seem to be carried so far, that they rest, and grow as it were immovable; light bodies are carried so far, that they begin a rotation or circular motion.

17. Inquire the cause why vapors and effluvia are carried so high as that called the middle region of the air, since the matter of them is somewhat gross, and the rays of the sun cease alternately by night.

18. Inquire into the tendency of flame upward, which is the more abstruse, because flame perishes every moment, unless perhaps in the midst of larger flames; for flames broken from their continuity are of small duration.

19. Inquire into the motion and activity of heat upward; as when heat in ignited iron sooner creeps upward than downward. And thus much by way of example of our particular topical inquiry. We must, for a conclusion, admonish mankind to alter their particular topics in such manner, as after some considerable progress made in the inquiry, to raise topic after topic, if they desire to ascend to the pinnacle of the sciences. For my own part, I attribute so much to these particular topics, that I design a particular work upon their use, in the more eminent and obscure subjects of nature; for we are masters of questions, though not of things. And here we close the subject of invention.

CHAPTER IV

The Art of Judgment divided into Induction and the Syllogism. Induction developed in the Novum Organum. The Syllogism divided into Direct and Inverse Reduction. Inverse Reduction divided into the Doctrine of Analytics and Confutations. The division of the latter into Confutations of Sophisms, the Unmasking of Vulgarisms (Equivocal Terms), and the Destruction of Delusive Images or Idols. Delusive Appearances divided into *Idola Tribûs*, *Idola Specûs*, and *Idola Fori*. Appendix to the Art of Judgment. The Adapting the Demonstration to the Nature of the Subject

WE COME now to the art of judgment, which treats of the nature of proof or demonstration. This art, as it is commonly received, concludes either by induction or syllogism: for enthymemes and examples are only abridgments of these two.[1] As to judgment by induction, we need not be large upon it, because what is sought we both find and judge of, by the same operation of the mind. Nor is the matter here transacted by a medium, but directly almost in the same manner as by the sense; for sense, in its primary objects, at once seizes the image of the object, and assents to the truth of it. It is otherwise in syllogism, whose proof is not direct, but mediate; and, therefore, the invention of the medium is one thing, and judgment, as to the consequence of an argument, another: for the mind first casts about, and afterward acquiesces. But for the corrupt form of induction, we entirely ignore it, and refer the genuine one to our method of interpreting nature. And thus much of judgment by induction.

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[1] An enthymeme is no other than a syllogism of two propositions, the third being supplied by the mind, as the word itself imports.—*Ed.*

a subtile genius, and reduced to numerous fragments, as having a great sympathy with the human understanding; for the mind is wonderfully bent against fluctuating, and endeavors to find something fixed and unmovable, upon which, as a firm basis, to rest in its inquiries. And as Aristotle endeavors to prove that, in all motion of bodies, there is something still at rest, and elegantly explains the ancient fable of Atlas, sustaining the heavens on his shoulders, of the poles of the world, about which the revolutions are performed:[2] so men have a strong desire to retain within themselves an atlas, or pole for their thoughts, in some measure to govern the fluctuations and revolutions of the understanding, as otherwise fearing their heaven should tumble. And hence it is, that they have been ever hasty in laying the principles of the sciences, about which all the variety of disputes might turn without danger of falling; not at all regarding, that whoever too hastily catches at certainties shall end in doubts, as he who seasonably withholds his judgment shall arrive at certainties.

It is therefore manifest that this art of judging by syllogism is nothing more than a reduction of propositions to their principles by middle terms.[3] But principles are supposed to be received by consent, and exempt from question, while the invention of middle terms is freely permitted to the subtilty and investigation of the wit. This reduction is of two kinds, direct and inverse. It is direct when the proposition itself is reduced to the principle, and this

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[2] Animal. Mot. 3.

[3] Bacon here only gives us a loose translation of the *Dictum de omne et nullo*, as inclosing the essentiality of the syllogism. Thus, to develop his thought, when a certain attribute does not appear to belong to a proposed subject, the logician presents another subject, in which the contested quality is admitted by his hearers to enter, and having shown that this new subject—the middle term—may be affirmed of the original subject with which he set out, he concludes that its inseparable attribute must also belong to it. If these two primary propositions, viz., those which affirm the attribute of the middle term, and connect this term with the original subject, need proof, he is obliged to seek other middle terms, and employ them in the same manner, until he establish his disputed premises on the basis of experience or consentaneous principles. If such fundaments, common to the minds of the disputants, do not exist, the argument is nugatory, and rational conviction impossible.—*Ed.*

is called ostensive proof: it is inverse when the contradictory of the proposition is reduced to the contradictory of the principle, which they call proof by absurdity: but the number or scale of the middle term is diminished, or increased, according to the remoteness of the proposition from the principle.[4]

Upon this foundation we divide the art of judgment nearly, as usual, into analytics, and the doctrine of elenches, or confutations; the first whereof supplies direction, and the other caution: for analytics directs the true forms of the consequences of arguments, from which, if we vary, we make a wrong conclusion. And this itself contains a kind of elench, or confutation; for what is right shows not only itself, but also what is wrong. Yet it is safest to employ elenches as monitors, the easier to discover fallacies, which would otherwise insnare the judgment. We find no deficiency in analytics; for it is rather loaded with superfluities than deficient.[5]

We divide the doctrine of confutations into three parts; viz., 1. The confutation of sophisms; 2. The confutation of interpretation; and 3. The confutation of images or idols. The doctrine of the confutation of sophisms is extremely useful: for although a gross kind of fallacy is not improperly compared, by Seneca, to the tricks of jugglers,[6] where we know not by what means the things are performed, but

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[4] For no proof can be considered conclusive, unless the conclusion be an immediate consequence from the propositions which involve the last middle term. Now, if the proposition we seek to establish be particular (singular), and the principle from which we set out general (universal), it is clear that, to connect principle and consequent, we must either climb gradually from principles less general to ones more enlarged, until we reach a proposition which connects the last consequent with the general principle in question; or we must descend by a similar gradation from principles less general to others more particular, until we reach the proposition which affirms the last consequence of the particular conclusion. The number, therefore, of these intermediate links, must augment or diminish in proportion to the interval which separates the principle and consequent.—*Ed.*

[5] Upon the subject of analytics, see Weigelius in his "Analysis Aristotelica, ex Euclide restituta;" and Morhof in his "Polyhistor," tom. i. lib. ii. c. 7, de Methodis variis.

[6] Epist. 45, c. 7.

are well assured they are not as they appear to be, yet the more subtile sophisms not only supply occasions of answer, but also in reality confound the judgment. This part concerning the confutation of sophisms is, in precept, excellently treated by Aristotle, but still better by Plato, in example; not only in the persons of the ancient sophists, Gorgias, Hippias, Protagoras, Euthydemus, etc., but even in the person of Socrates himself,[7] who, always professing to affirm nothing, but to confute what was produced by others, has ingeniously expressed the several forms of objections, fallacies, and confutations. Therefore in this part we find no deficiency, but only observe by the way, that though we place the true and principal use of this doctrine in the confutation of sophisms, yet it is plain that its degenerate and corrupt use tends to the raising of cavils and contradictions, by means of those sophisms themselves; which kind of faculty is highly esteemed, and has no small uses, though it is a good distinction made between the orator and the sophist, that the former excels in swiftness, as the greyhound, the other in the turn, as the hare.

With regard to the confutations of interpretation, we must here repeat what was formerly said of the transcendental and adventitious conditions of beings, such as greater, less, whole, parts, motion, rest, etc. For the different way of considering these things, which is either physically or logically, must be remembered.[8] The physical treatment of them we have allotted to primary philosophy, but their logical treatment is what we here call the confutation of interpretation. And this we take for a sound and excellent part of learning, as general and common notions, unless accurately and judiciously distinguished from their origin, are apt to mix themselves in all disputes, so as strangely to cloud and darken the light of the question, and frequently occasion the controversy to end in a quarrel about words:

[7] See the opening of the Theætetus.

[8] He might have added, mathematically, as greater and less have different significations in arithmetic and algebra.—*Ed.*

for equivocations and wrong acceptations of words, especially of this kind, are the sophisms of sophisms;[9] wherefore it is better to treat of them separate than either to receive them into primary philosophy or metaphysics, or again, to make them a part of analytics, as Aristotle has confusedly done. We give this doctrine a name from its use, because its true use is indeed redargution and caution about the employing of words. So, likewise, that part concerning predicaments, if rightly treated, as to the cautions against confounding or transposing the terms of definitions and divisions, is of principal use, and belongs to the present article. And thus much for the confutation of interpretation.

As to the confutation of images, or idols, we observe that idols are the deepest fallacies of the human mind; for they do not deceive in particulars, as the rest, by clouding and insnaring the judgment; but from a corrupt predisposition, or bad complexion of the mind, which distorts and infects all the anticipations of the understanding. For the mind, darkened by its covering the body, is far from being a flat, equal, and clear mirror that receives and reflects the rays without mixture, but rather a magical glass, full of superstitions and apparitions. Idols are imposed upon the understanding, either, 1, by the general nature of mankind; 2, the nature of each particular man; or 3, by words, or communicative nature. The first kind we call idols of the tribe; the second kind, idols of the den; and the third kind, idols of the market. There is also a fourth kind, which we call idols of the theatre, being superinduced by false theories, or philosophies, and the perverted laws of demonstration. This last kind we are not at present concerned with, as it may be rejected and laid aside; but the others seize the mind strongly, and cannot be totally eradicated. Therefore no art of analytics can be expected here, but the doctrine of the confutation of idols is the primary doctrine of idols.

[9] Rather, vulgarisms; since sophisms imply a use of the intellect, though a perverted use; but the wrong acceptations of words imply no use at all:—*Ed.*

Nor indeed can the doctrine of idols be reduced to an art, but can only be employed by means of a certain contemplative prudence to prevent them.

For the idols of the tribe,[10] it is observable, that the nature of the understanding is more affected with affirmatives and actives than with negatives and privatives, though in justness it should be equally affected with them both; but if things fall out right, or keep their course, the mind receives a stronger impression of this than of a much greater number of failures, or contrary events, which is the root of all superstition and credulity. Hence Diagoras, being shown in Neptune's temple many votive pictures of such as had escaped shipwreck, and thereupon asked by his guide, if he did not acknowledge the divine power? answered wisely, "But first show me where those are painted that were shipwrecked, after having thus paid their vows."[11] And the case is the same, in the similar superstitions of astrological predictions, dreams, omens, etc. Again, the mind, being of itself an equal and uniform substance, presupposes a greater unanimity and uniformity in the nature of things than there really is, as may be observed in astronomical mathematicians, who, rejecting spiral lines, assert that the heavenly bodies move in perfect circles;[12] whence our thoughts are continually drawing parallels, and supposing relations in many things that are truly different and singular. Hence the chemists have fantastically imagined their four principles corresponding to the heavens, air, earth, and water; dreaming that the series of existences formed a

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[10] These might otherwise be called partial idols, as owing to the partiality or obliquity of the mind, which has its particular bent, and admits of some things more readily than others, without a manifest reason assigned for it to the understanding. However this be, they manifestly belong to the tribe of mankind.—*Shaw.*

[11] Cicero, Natur. Deor. v. 9.

[12] The observations of Bradley and Molyneux directly establish the elliptical orbit, in which the earth performs its yearly revolution. The spiral lines, which Bacon suggests in place of the concentric and elliptical theory, are only the apparent paths which the planets seem to follow when viewed by the naked eye, and have long since, with the cumbersome machinery of Ptolemy, been swept from the heavens.—*Ed.*

kind of square battalion, and that each element contained species of beings corresponding to each other, and possessing, as it were, parallel properties.[13] And again, men make themselves, as it were, the mirror and rule of nature. It is incredible what a number of idols have been introduced into philosophy by the reduction of natural operations to a correspondence with human actions; that is, by imagining nature acts as man does, which is not much better than the heresy of the anthropomorphites, that sprung up in the cells and solitude of ignorant monks;[14] or the opinion of Epicurus, who attributed a human figure to the gods. Velleius the Epicurean need not, therefore, have asked why God should have adorned the heavens with stars and lights, as master of the works? For if the grand architect had acted a human part, he would have ranged the stars into some beautiful and elegant order, as we see in the vaulted roofs of palaces; whereas we scarce find among such an infinite multitude of stars any figure either square, triangular, or rectilinear; so great a difference is there between the spirit of man, and the spirit of the universe.

The idols of the den have their origin from the peculiar nature, both of mind and body, in each person; as also from education, custom, and the accidents of particular persons. It is a beautiful emblem, that of Plato's den;[15] for, to drop the exquisite subtilty of the parable, if any one should be educated from his infancy in a dark cave till he were of full age, and should then of a sudden be brought into broad daylight, and behold this apparatus of the heavens and of things, no doubt but many strange and absurd fancies would arise in his mind; and though men live indeed in the view of the heavens, yet our minds are confined in the caverns of our bodies; whence of necessity we receive infinite images of errors and falsehoods, if the mind does but seldom, and only for a short continuance, leave its den, and not con-

[13] This hypothesis gave rise to the romance of Lamekis.
[14] Epiphanius, adv. Hær. p. 811, in which the heresy of Audius is explained.
[15] Repub. vii.

stantly dwell in the contemplation of nature, as it were, in the open daylight. And with this emblem of Plato's den agrees the saying of Heraclitus; viz., that men seek the sciences in their own narrow worlds, and not in the wide one.

But the idols of the market give the greatest disturbance, and from a tacit agreement among mankind, with regard to the imposition of words and names, insinuate themselves into the understanding: for words are generally given according to vulgar conception, and divide things by such differences as the common people are capable of: but when a more acute understanding, or a more careful observation, would distinguish things better, words murmur against it. The remedy of this lies in definitions; but these themselves are in many respects irremediable, as consisting of words: for words generate words, however men may imagine they have a command over words, and can easily say they will speak with the vulgar, and think with the wise. Terms of art also, which prevail only among the skilful, may seem to remedy the mischief, and definitions premised to arts in the prudent mathematical manner, to correct the wrong acceptation of words; yet all this is insufficient to prevent the seducing incantation of names in numerous respects, their doing violence to the understanding, and recoiling upon it, from whence they proceeded. This evil, therefore, requires a new and a deeper remedy; but these things we touch lightly at present, in the meantime noting this doctrine of grand confutations, or the doctrine of the native and adventitious idols of the mind, for deficient.

There is also wanting a considerable appendix to the art of judgment. Aristotle indeed marks out the thing, but has nowhere delivered the manner of effecting it. The design is to show what demonstrations should be applied to what subjects, so that this doctrine should contain the judging of judgments. For Aristotle well observes, that we should not require demonstrations from orators, nor persuasion from mathematicians;[16] so that if we err in the kind of

[16] Ethics, xiii. 1.

proof, judgment itself cannot be perfect. And as there are four kinds of demonstration, viz., 1, by immediate consent and common notions; 2, by induction; 3, by syllogism; and 4, by congruity,[17] which Aristotle justly calls demonstration in circle,[18] each of these demonstrations has its peculiar subjects, and parts of the sciences, wherein they are of force, and others again from which they are excluded; for insisting upon too strict proofs in some cases, and still more the facility and remissness in resting upon slight proofs in others, is what has greatly prejudiced and obstructed the sciences. And so much for the art of judgment.

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[17] Analogical demonstration, or proof *à latere*, to which Bacon seems to refer, consists in showing that the disputed attribute may be affirmed of several subjects analogical to the one proposed, and thence proceeds to draw the inference that such attribute enters also into the subject in question. In addition to these last three kinds of mediate positive proof, there are three others, which may be called mediate negative; viz., 1, *à posteriori*, which in inferring conclusions erroneous from the contradictory of that which is sought to be maintained, shows that the opposition is formed on false principles, and establishes the truth of their contradictories. 2, *à priori*, which in showing that the contradictory of the original proposition is a necessary consequence of some exploded principle, and also contradictory to the principle of which the contested proposition is also a consequence, infers the truth of such proposition with the principle of which it is a corollary. 3, *à latere*, whose object is to show that the attribute diametrically opposite to the one in question, agrees with a subject also diametrically opposite to the one proposed, that the last attribute may be inferred to agree with the last subject.—*Ed.*

[18] Bacon seems to imply that Aristotle not only admitted demonstration in a circle, but even understood it in the sense of analogical proof or demonstration *à latere;* whereas the Stagyrite only introduced the term for the purpose of controverting it. Some of the ancient materialists, in order to rid themselves of the illogical consequences of a series of proofs ad infinitum, in which the denial of first principles involved them, asserted the possibility of demonstrating all things from each other, a line of argument in which the chain of proof would run into itself: ἀλλὰ πάντων εἶναι, ἀπόδειξιν οὐδὲν κωλύει· ἐνδέχεται γὰρ κύκλῳ γενέσθαι τὴν ἀπόδειξιν καὶ ἐξ ἀλλήλων. (Arist. Anal. Post. i. 3.) The Stagyrite, however, confronted this assertion with the reason, that demonstration could only be effected by evolving new truths out of things prior and more known, and pronounced the formation of a body of scientific truths without admitting first principles more palpable to the mind than any proof could make them, impossible. See, also, Arist. Analyt. Pri. ii. 5, 1.—*Ed.*

CHAPTER V

Division of the Retentive Art into the Aids of the Memory and the Nature of the Memory itself. Division of the Doctrine of Memory into Prenotion and Emblem

WE DIVIDE the art of memory, or the keeping and retaining of knowledge, into two parts; viz., the doctrine of helps for the memory, and the doctrine of the memory itself. The help for the memory is writing; and we must observe, that the memory, without this assistance, is unequal to things of length and accuracy, and ought not otherwise to be trusted. And this holds particularly in inductive philosophy, and in the interpretation of nature; for one might as well undertake to make an almanac by the memory, without writing, as to interpret nature by bare contemplation. Scarce anything can be more useful in the ancient and popular sciences than a true and solid help for the memory, that is, a just and learned digest of commonplaces. Some, indeed, condemn this method as prejudicial to erudition, hindering the course of reading, and rendering the memory indolent; but as it is a wrong procedure in the sciences to be over-hasty and quick, we judge it is of great service in studies, unless a man be solid, and completely instructed, to bestow diligence and labor in setting down commonplaces; as it affords matter to invention, and collects and strengthens the judgment. But among all the methods and commonplace books we have hitherto seen, there is not one of value;[1] as savoring of the school rather than the world, and using rather vulgar and pedantical divisions than such as any way penetrate things.

[1] Upon the subject of commonplace, consult Morhof's "Polyhistor," tom. i. lib. i. cap. 21, de Locorum Communium Scriptoribus; Mr. Locke's commonplace, in his "Discourse of the Conduct of the Understanding"; and Julian's "Emploi du Temps."—*Shaw.*

And for the memory itself, it seems hitherto to have been negligently and superficially inquired into. There is, indeed, some art of memory extant; but I know that much better precepts for confirming and enlarging the memory may be had than this art contains, and that a better practice of the art itself may be formed than what is at present received. And I doubt not, if any one were disposed to make an ostentatious show of this art, that many surprising things might be performed by it; and yet, as now managed, it is but barren and useless. We do not, however, pretend that it spoils or surcharges the natural memory, which is the common objection, but that it is not dexterously applied for assisting the memory in real business, and serious affairs. But this turn, perhaps, I may receive from the political course of life I have led, never to value what has the appearance of art without any use. For immediately to repeat a multitude of names, or words, once repeated before, or offhand to compose a great number of verses upon a subject, or to touch any matter that occasionally turns up with a satirical comparison, or to turn serious things into jest, or to elude anything by contradiction, or cavil, etc., of all which faculties there is a great fund in the mind, and which may, by a proper capacity and exercise, be carried to almost a miraculous height; yet I esteem all the things of this kind no more than rope-dancing, antic postures, and feasts of activity. And indeed they are nearly the same things, the one being an abuse of the bodily, as the other is of the mental powers; and though they may cause admiration, they cannot be highly esteemed.

This art of memory has two intentions; viz., prenotion and emblem. By prenotion we understand the breaking off of an endless search; for when one endeavors to call anything to mind without some previous notion, or perception of what is sought for, the mind strives and exerts itself, endeavors and casts about in an endless manner; but if it has any certain notion beforehand, the infinity of the search is presently cut short, and the mind hunts nearer home as

in an inclosure. Order, therefore, is a manifest help to memory; for here there is a previous notion, that the things sought for must be agreeable to order. And thus verse is easier remembered than prose, because if we stick at any word in verse, we have a previous notion that it is such a word as must stand in the verse, and this prenotion is the first part of artificial memory. For in artificial memory we have certain places digested, and proposed beforehand; but we make images extemporary as they are required, wherein we have a previous notion that the image must be such as may, in some measure, correspond to its place; while this stimulates the memory, and, as it were, strengthens it to find out the thing sought for.

But emblems bring down intellectual to sensible things; for what is sensible always strikes the memory stronger, and sooner impresses itself than what is intellectual. Thus the memory of brutes is excited by sensible, but not by intellectual things. And, therefore, it is easier to retain the image of a sportsman hunting the hare, of an apothecary ranging his boxes, an orator making a speech, a boy repeating verses, or a player acting his part, than the corresponding notions of invention, disposition, elocution, memory, and action. There are also other things that contribute to assist the memory, but the art at present in use consists of the two above mentioned;[2] and to treat of the particular defects of the arts is foreign to our present purpose.

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[2] I suppose that the art of memory, now commonly taught by memory-masters, is little more than a lecture upon the foundations here laid down; and perhaps their secrets are disclosed in Sir Hugh Plat's "Jewel House of Art and Nature," printed in London in the year 1653. See page 77–80 of that edition. Consult also upon the means of improving the memory, Morhof's "Polyhistor," tom. i. lib. ii. cap. 4, de Subsidiis dirigendi Judicii.—*Shaw.* [Grey's "Memoria Technica" and Feinagle's "Art of Memory" are the modern works on the same subject.—*Ed.*]

SIXTH BOOK

CHAPTER I

Division of Tradition into the Doctrine of the Organ, the Method and the Illustration of Speech. The Organ of Speech divided into the Knowledge of the Marks of Things, of Speaking and Writing. The last two comprise the two Branches of Grammar. The Marks of Things divided into Hieroglyphics and Real Characters. Grammar again divided into Literary and Philosophical. Prosody referred to the Doctrine of Speech, and Ciphers to the Department of Writing

ANY man may, excellent King, when he pleases, take the liberty to jest and laugh at himself or his own projects. Who, then, knows—as there is a book in the famous library of St. Victor, entitled "Formicarum Artium,"[1] whether our book may not be an accidental transcript of its contents. We have indeed only accumulated a little heap of dust, and deposited therein many grains of the arts and sciences whereto ants may creep to repose a while, and then betake themselves to their labors: nay, the wisest of kings points out the ant as an example to those whose only care is to live upon the main stock, neglecting to cultivate the fields of science, and reap a new harvest of discoveries.[2]

We next proceed to the art of delivering, uttering, and communicating such things as are discovered, judged of, and treasured up in the memory; and this we call by the general name of traditive doctrine, which takes in all the arts relating to words and discourse. For although reason be as the soul of discourse, yet they ought both to be treated separate, no less than the soul and body. We divide this traditive doctrine into three parts; viz., with regard, 1, to

[1] Pantagruel, ii. 7, p. 76.

[2] ii. 6, 6.

the organ; 2, the method; and 3, the illustration or ornament of speech and discourse.

The vulgar doctrine of the organ of speech called grammar is of two kinds, the one having relation to speaking, the other to writing. For, as Aristotle well observed, words are the marks of thoughts, and letters of words; and we refer both of these to grammar.[3] But before we proceed to its several parts, it is necessary to say something in general of the organ of this traditive doctrine, because it seems to have more descendants besides words and letters. And here we observe, that whatever may be split into differences, sufficiently numerous for explaining the variety of notions, provided these differences are sensible, may be a means of conveying the thoughts from man to man; for we find that nations of different languages hold a commerce, in some tolerable degree, by gestures. And from the practice of some persons born deaf and dumb, but otherwise ingenious, we see conversation may be held between them and such of their friends as have learned their gestures. And it is now well known, that in China and the more eastern provinces, they use at this day certain real, not nominal, characters,[4] to express, not their letters or words,

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[3] Interpret. i. 2.

[4] The original is, "nec literas nec verba," which in Latin signify oral as well as written language; so that, to avoid equivocation, we should annex the two adjectives, sonorous and written, to fix their signification. With regard to the relation which exists between the oral and written speech of the Chinese, it is, as the text would imply, not different from that which prevails among us. In articulating, we pronounce as the Chinese the sonorous signs which correspond to the written words, and their art of reading, no less than ours, consists in the struggle to transplant this correspondence in our minds, and learn its reciprocal relations. Even allowing that the Chinese, in addition to their vulgar tongue, had adopted hieroglyphical writing, so designed as to convey, without the interposition of oral signs, the exact ideas which they represent, yet each of these signs would invariably awaken the idea which represented it in the oral language, as well as the vocal word refer to the idea indicated by the written hieroglyphic. The only persons who appear not to intrude intermediate signs between the hieroglyphic and the idea which it conveys to the mind, are those who are incapacitated by nature. But in this respect there is no resemblance between the deaf and dumb and our Asiatic contemporaries.

Bacon therefore has not seized the exact distinction between the Chinese writing and our own, which consists not in dispensing with vocal signs, but in the diversified elements of which it is composed. Our language contains only

but things and notions; insomuch, that numerous nations, though of quite different languages, yet, agreeing in the use of these characters, hold correspondence by writing.[5] And thus a book written in such characters may be read and interpreted by each nation in its own respective language.

The signs of things significative without the help or interposition of words are therefore of two kinds, the one congruous, the one arbitrary. Of the first kind, are hieroglyphics and gestures; of the second, real characters. The use of hieroglyphics is of great antiquity, being held in veneration, especially among that most ancient nation, the Egyptians, insomuch that this seems to have been an early kind of writing, prior to the invention of letters, unless, perhaps, among the Jews.[6] And gestures are a kind of transitory hieroglyphics; for as words are fleeting in the pronunciation, but permanent when written down, so hieroglyphics, expressed by gesture, are momentary; but when painted, durable. When Periander, being consulted how to preserve a tyranny newly usurped, bid the messenger report what he saw; and going into the garden, cropped all the tallest flowers;[7] he thus used as strong a hieroglyphic as if he had drawn it upon paper.

Again, it is plain that hieroglyphics and gestures have

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twenty-five letters, while the Chinese letters are as innumerable as our words; and what makes the distinction perhaps more startling, there never has been an attempt on the part of that nation to analyze this infinite series of words, or to reduce them to the common elements of vocal sounds. Through this want of philosophic analysis, which characterizes nearly all the Asiatic tribes, the Chinese may be said never perfectly to understand their own language.—*Ed.*

[5] See Spizelius "De Re Literaria Chinensium," ed. Lugd. Bat. 1660; Webb's "Historical Essay upon the Chinese Language," printed at London, 1669; Father Besnier's "Réunion des Langues"; Father le Compe, and other of the Missionaries' Letters.—*Ed.*

[6] See Causinus's "Polyhistor. Symbolicus," and "Symbolica Ægyptiorum Sapientia," ed. Par. 1618. And for other writers upon this subject, see Morhof's "Polyhistor," tom. i. lib. iv. cap. 2, de Variis Scripturæ Modis.—*Ed.*

[7] Arist. Polit. iii. 13. The person who sent to consult Periander was Thrasybulus of Miletus. Herodotus (v. 92) gives the opposite version of the story, making Periander consult Thrasybulus. Compare the story of Tarquin, told by Ovid, Fast. ii. 701.

always some similitude with the things signified, and are in reality emblems; whence we call them congruous marks of things: but real characters have nothing of emblem, as being no less mute than the elementary letters themselves, and invented altogether at discretion, though received by custom as by a tacit agreement. Yet it is manifest that a great number of them is required in writing; for they must be as numerous as the radical words. This doctrine, therefore, concerning the organ of speech, that is, the marks of things, we set down as wanting; for although it may seem a matter of little use, while words and writing with letters are much more commodious organs of delivery; yet we think proper here to mention it as no inconsiderable thing. For while we are treating, as it were, of the coin of intellectual matters, it is not improper to observe that as money may be made of other materials besides gold and silver, so other marks of things may be invented besides words and letters.[8]

Grammar holds the place of a conductor in respect of the other sciences; and though the office be not noble, it is extremely necessary, especially as the sciences in our times are chiefly derived from the learned languages. Nor should this art be thought of small dignity, since it acts as an antidote against the curse of Babel, the confusion of tongues. Indeed, human industry strongly endeavors to recover those enjoyments it lost through its own default. Thus it guards against the first general curse, the sterility of the earth, and the eating our bread in the sweat of the brow, by all the other arts; as against the second, the confusion of languages, it calls in the assistance of grammar. Though this art is of little use in any maternal language, but more serviceable

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[8] On this foundation, Bishop Wilkins undertook his laborious treatise of a real character, or philosophical language; though Dalgarn published a treatise on the same subject before him; viz., at London, in the year 1661. In the same year, Becher also published another to the same purpose at Frankfort, entitled "Character pro Notitia Linguarum Universali." See more upon this subject in Joachim Fritschii "Lingua Ludovicea," Kircher's "Polygraphia," Paschius's "Inventa Nova-Antiqua," and Morhof's "Polyhistor."—*Shaw.*

in learning the foreign ones, and most of all in the dead ones, which now cease to be popular, and are only preserved in books.

We divide grammar also into two parts—literary and philosophical; the one employed simply about tongues themselves, in order to their being more expeditiously learned or more correctly spoken, but the other is in some sort subservient to philosophy; in which view Cæsar wrote his books of Analogy,[9] though we have some doubt whether they treated of the philosophical grammar now under consideration. We suspect, however, that they contained nothing very subtile or sublime, but only delivered precepts of pure and correct discourse, neither corrupted by any vulgar, depraved phrases, and customs of speech, nor vitiated by affectation; in which particular the author himself excelled. Admonished by this procedure, I have formed in my thoughts a certain grammar, not upon any analogy which words bear to each other, but such as should diligently examine the analogy or relation between words and things, yet without any of that hermeneutical doctrine, or doctrine of interpretation, which is subservient to logic. It is certain that words are the traces or impressions of reason; and impressions afford some indication of the body that made them. I will, therefore, here give a small sketch of the thing.

And first, we cannot approve that curious inquiry, which Plato however did not contemn, about the imposition and original etymology of names,[10] as supposing them not given arbitrarily at first, but rationally and scientifically derived and deduced. This indeed is an elegant, and, as it were, a waxen subject, which may handsomely be wrought and twisted; but because it seems to search the very bowels of antiquity, it has an awful appearance, though attended with but little truth and advantage. But it would be a noble kind of a grammar, if any one, well versed in numer-

[9] Suetonius' Life.

[10] Cratyl.

ous languages, both the learned and vulgar, should treat of their various properties, and show wherein each of them excelled and fell short; for thus languages might be enriched by mutual commerce, and one beautiful image of speech, or one grand model of language for justly expressing the sense of the mind, formed, like the Venus of Apelles, from the excellences of several. And thus we should, at the same time, have some considerable marks of the genius and manners of people and nations from their respective languages. Cicero agreeably remarks, that the Greeks had no word to express the Latin ineptum;[11] "because," says he, "the fault it denotes was so familiar among them, that they could not see it in themselves"; a censure not unbecoming the Roman gravity. And as the Greeks used so great a licentiousness in compounding words, which the Romans so religiously abstained from, it may hence be collected that the Greeks were better fitted for arts, and the Romans for exploits; as variety of arts makes compound words in a manner necessary, while civil business, and the affairs of nations, require a greater simplicity of expression. The Jews were so averse to these compositions, that they would rather strain a metaphor than introduce them. Nay, they used so few words and so unmixed, that we may plainly perceive from their language they were a Nazarite people, and separate from other nations. It is also worth observing, though it may seem a little ungrateful to modern ears, that the ancient languages are full of declensions, cases, conjugations, tenses, and the like; but the later languages, being almost destitute of them, slothfully express many things by prepositions and auxiliary verbs. For from hence it may easily be conjectured, that the genius of former ages, however we may flatter ourselves, was much more acute than our own. And there are things enough of this kind to make a volume. It seems reasonable, therefore, to distinguish a philosophical

[11] Orator, ii. 4.

grammar from a simple literary one, and to set it down as deficient.[12]

All the accidence of words—as sound, measure, accent—likewise belong to grammar; but the primary elements of simple letters, or the inquiry with what percussion of the tongue, opening of the mouth, motion of the lips, and use of the throat, the sound of each letter is produced, has no relation to grammar, but is a part of the doctrine of sounds, to be treated under sense and sensible objects.[13] The grammatical sound we speak of regards only sweetness and harshness. Some harsh and sweet sounds are general; for there is no language but in some degree avoids the chasms of concurring vowels or the roughness of concurring consonants. There are others particular or respective, and pleasing or displeasing to the ears of different nations. The Greek language abounds in diphthongs, which the Roman uses much more sparingly, and so of the rest. The Spanish tongue avoids letters of a shrill sound, and changes them into letters of a middle tone. The languages of the Teutonic stock delight in aspirates, and numerous others which we have not space to cite.

But the measure of words has produced a large body of art; viz., poetry, considered not with regard to its matter, which was considered above, but its style and the structure of words; that is, versification; which, though held as trivial, is honored with great and numerous examples. Nor should this art, which the grammarians call prosodia, be confined only to teaching the kinds of verse and measure; but precepts also should be added, as to what kind of verse

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[12] Considerable pains have been bestowed upon this subject by various authors; an account whereof is given by Morhof in his "Polyhistor." See tom. i. lib. iv. cap. 3, 4, 5; or more particularly, Abraham Mylii "De Linguæ Belgicæ cum aliis Linguis Communitate"; Henrici Schævii "Dissertationes Philologicæ de Origine Linguarum et quibusdam earum attributis"; Thom. Hayne "De Linguis in genere, et de variarum Linguarum Harmonia," in the appendix to his "Grammaticæ Latinæ Compendium," and Dr. Wallis's "Grammatica Linguæ Anglicanæ."—*Ed.*

[13] This is the subject which J. Conrad. Amman has prosecuted with great diligence, in his "Surdus loquens," and "Dissertatio de Loquela"; first printed at Amsterdam in 1692, and the last in 1700.—*Shaw.*

is agreeable to every subject. The ancients applied heroic verse to encomium, elegy to complaint, iambic to invective, and lyric to ode and hymn; and the same has been prudently observed by the modern poets, each in his own language: only they deserve censure in this, that some of them, through affectation of antiquity, have endeavored to set the modern languages to ancient measure; as sapphic, elegiac, etc., which is both disagreeable to the ear, and contrary to the structure of such languages.[14] And in these cases, the judgment of the sense is to be preferred to the precepts of art. As the poet says,

——"Cœnæ Ferculæ nostræ
Mallem convivis quam placuisse cocis." [15]

Nor is this an art, but the abuse of art, as it does not perfect nature, but corrupt her. As to poetry, both with regard to its fable and its verse, it is like a luxuriant plant, sprouting not from seed, but by the mere vigor of the soil; whence it everywhere creeps up, and spreads itself so wide, that it were endless to be solicitous about its defects. And as to the accents of words, there is no necessity for taking notice of so trivial a thing; only it may be proper to intimate, that these are observed with great exactness, while the accents of sentences are neglected; though it is nearly common to all mankind to sink the voice at the end of a period, to raise it in interrogation, and the like.[16] And so much for that part of grammar which regards speaking.

Writing is practiced either by means of the common alphabet, now vulgarly received, or of a secret and private one, agreed upon between particular persons, and called by the name of cipher. But here a question arises about the common orthography; viz., whether words should be wrote as they are pronounced, or after the common manner?

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[14] For some examples of this kind, see Southey's Epics.

[15] Martial, Epig. ix. 82.

[16] The stage having cultivated the accentuation of sentences more than the school, the rules of the art might, perhaps, to advantage, be borrowed from thence, in order to form an early habit of graceful speaking.—*Shaw.*

Certainly that reformed kind of writing, according to the pronunciation, is but a useless speculation, because pronunciation itself is continually changing, and the derivations of words, especially from the foreign languages, are very obscure; and lastly, as writing in the received manner no way obstructs the manner of pronunciation, but leaves it free, an innovation in it is to no purpose.

There are several kinds of ciphers, as the simple,[17] those mixed with non-significants,[18] those consisting of two kinds of characters,[19] wheel-ciphers,[20] key-ciphers,[21] word-ciphers,[22] etc. There are three properties required in ciphers; viz., 1, that they be easy to write and read; 2, that they be trusty and undecipherable; and 3, if possible, clear of suspicion. For if a letter should come into the hands of such as have a power over the writer or receiver, though the cipher itself be trusty and impossible to decipher, it is still subject to examination and question, unless there be no room to suspect or examine it.

There is a new and useful invention to elude the examination of a cipher; viz., to have two alphabets, the one of significant, and the other of non-significant letters; and folding up two writings together, the one conveying the secret, while the other is such as the writer might probably send without danger. In case of a strict examination about

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[17] In which each letter corresponds to a different letter of the alphabet.—*Ed.*

[18] That is, joined to other letters and words, the juncture of which destroys the sense to an ordinary observer, which the first letters and words are intended to convey.—*Ed.*

[19] Abbreviated writing, or shorthand.—*Ed.*

[20] This is a kind of dial, on which are drawn the circumferences of two concentric circles, bordered by the letters of the alphabet. Each letter being marked with a sign, we know to what letter of the exterior circle, each of the interior corresponds in relation to its rank in the alphabet. For example, suppose that it had been previously determined that the letter f should represent *a*, g *b*, and h *c*, the receiver of the missive should turn the interior circle of the dial round until the *a* in this circle pointed to *f* in the exterior, and then in the place of the letters in the note he had received, he would read those which corresponded to them in the interior circle.—*Ed.*

[21] The key-ciphers are those figures which explain the latent sense of the letter, and are either conveyed with it, or previously concerted by those who are parties to the communication.—*Ed.*

[22] Verbal ciphers are those which represent entire words.—*Ed.*

the cipher, the bearer is to produce the non-significant alphabet for the true, and the true for the non-significant; by which means the examiner would fall upon the outward writing, and finding it probable, suspect nothing of the inner.[23]

But to prevent all suspicion, we shall here annex a cipher of our own, that we devised at Paris in our youth, and which has the highest perfection of a cipher—that of signifying *omnia per omnia* (anything by everything),[24] provided only the matter included be five times less than that which includes it, without any other condition or limitation. The invention is this: first let all the letters of the alphabet be resolved into two only, by repetition and transposition; for a transposition of two letters through five places, or different arrangements, will denote two-and-thirty differences, and consequently fewer, or four-and-twenty, the number of letters in our alphabet, as in the following example:

A BILITERAL ALPHABET,

Consisting only of a *and* b *changed through five places, so as to represent all the letters of the common alphabet*

A = aaaaa	I = abaaa	R = baaaa
B = aaaab	K = abaab	S = baaab
C = aaaba	L = ababa	T = baaba
D = aaabb	M = ababb	V = baabb
E = aabaa	N = abbaa	W = babaa
F = aabab	O = abbab	X = babab
G = aabba	P = abbba	Y = babba
H = aabbb	Q = abbbb	Z = babbb

Thus, in order to write an A, you write five *a*'s, or aaaaa; and to write a B, you write four *a*'s and one *b*, or aaaab; and so of the rest.

And here, by the way, we gain no small advantage, as this contrivance shows a method of expressing and signify-

[23] The publishing of this secret frustrates its intention; for the examiner, though he should find the outward letter probable, would doubtless, when thus advertised, examine the inner, notwithstanding its alphabet were delivered to him for non-significants.—*Shaw.*

[24] For this cipher is practicable in all things that are capable of two differences.

ing one's mind to any distance, by objects that are either visible or audible—provided only the objects are but capable of two differences, as bells, speaking-trumpets, fireworks, cannon, etc. But for writing, let the included letter be resolved into this biliteral alphabet; suppose that letter were the word FLY, it is thus resolved:

F	L	Y
aabab	ababa	babba

Let there be also at hand two other common alphabets, differing only from each other in the make of their letters; so that, as well the capital as the small be differently shaped or cut at every one's discretion: as thus, for example, in Roman and Italic; each Roman letter constantly representing A, and each Italic letter B.

THE FIRST, OR ROMAN ALPHABET

A, a	H, h	O, o	V, v
B, b	I, i	P, p	U, u
C, c	K, k	Q, q	W, w
D, d	L, l	R, r	X, x
E, e	M, m	S, s	Y, y
F, f	N, n	T, t	Z, z
G, g			

All the letters of this Roman alphabet are read or deciphered, by translating them into the letter A only.

THE SECOND, OR ITALIC ALPHABET

A, a	*H, h*	*O, o*	*V, v*
B, b	*I, i*	*P, p*	*U, u*
C, c	*K, k*	*Q, q*	*W, w*
D, d	*L, l*	*R, r*	*X, x*
E, e	*M, m*	*S, s*	*Y, y*
F, f	*N, n*	*T, t*	*Z, z*
G, g			

All the letters of this Italic alphabet are read by translating them into the letter B only.

Now adjust or fit any external double-faced writing, letter by letter, to the internal writing, first made biliterate; and afterward write it down for the letter or epistle to be sent. Suppose the external writing were, "Stay till I come to you," and the internal one were, "Fly"; then,

as we saw above, the word "Fly," resolved by means of the biliteral alphabet, is

F L Y
aabab ababa babba

whereof I fit, letter by letter, the words "Stay till I come to you," observing the use of my two alphabets of differently shaped letters, thus:

aabab ababa babba
Stay t il i co me to you

Having now adjusted my writing according to all my alphabets, I send it to my correspondent, who reads the secret meaning by translating the Roman letters into *a*'s, and the Italic ones into *b*'s, according to the Roman and Italic alphabets, and comparing each combination of five of them with the biliteral alphabet.[25]

We herewith annex a fuller example of the cipher of writing "omnia per omnia," viz., an interior letter once sent by the Ephores of Sparta in a scytale or round ciphered staff:

"Perditæ res. Minidarus cecidit. Milites esuriunt, neque hinc nos extricare, neque hic diutius manere possumus."

The exterior letter in which the above is involved is taken from the first epistle of Cicero. We adjoin it:

"Ego omni officio ac potius pietate erga te, cæteris satisfacio omnibus; mihi ipse numquam satisfacio. Tanta est enim magnitudo tuorum erga me meritorum, ut quoniam tu nisi perfecta re, de me non conquiesti. Ego quia non idem tu tua causa efficio, vitam mihi esse acerbam putem. In causa hæc sunt; Ammonius regis legatus aperte pecunia non oppugnat. Res agitur per eosdem creditores per quos,

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[25] Those who desire a fuller explanation may consult Bishop Wilkins's "Secret and Swift Messenger," or rather Mr. Falconer's "Cryptomenysis Patefacta, or Art of Secret Information disclosed without a Key." The trustiness of this cipher depends upon a dexterous use of two hands, or two different kinds of letters, in the same writing, which the skilful decipherer, being thus advertised of, will be quick-sighted enough to discern, and consequently be able to decipher, though a foundation seems here laid for several other ciphers, that perhaps could neither be suspected nor deciphered.—*Shaw.*

cum tu aderas, agebatur regis causa, si qui sunt, qui velint qui pauci sunt, omnes ad Pompeium rem deferri volunt. Senatus religionis calumniam, non religione, sed malevolentia, et illius regiæ largitionis invidia, comprobat," etc.

The doctrine of ciphers has introduced another, relative to it, viz., the art of deciphering without the alphabet of the cipher, or knowing the rules whereby it was formed. This indeed is a work of labor and ingenuity, devoted, as well as the former, to the secret service of princes. Yet by a diligent precaution it may be rendered useless, though, as matters now stand, it is highly serviceable: for if the ciphers in use were good and trusty, several of them would absolutely elude the labor of the decipherer, and yet remain commodious enough, so as to be readily written and read. But through the ignorance and unskilfulness of secretaries and clerks in the courts of princes, the most important affairs are generally committed to weak and treacherous ciphers.[26]—And thus much for the organ of speech.

CHAPTER II

Method of Speech includes a wide Part of Tradition. Styled the Wisdom of Delivery. Various kinds of Methods enumerated. Their respective Merits

THE doctrine concerning the method of speech has been usually treated as a part of logic; it has also found a place in rhetoric, under the name of disposition; but the placing of it in the train of other arts has introduced

[26] The art of ciphering is doubtless capable of great improvement. It is said that King Charles I. had a cipher consisting only of a straight line differently inclined; and there are ways of ciphering by the mere punctuation of a letter, while the words of the letter shall be non-significants, or sense, that leave no room for suspicion. It may also be worth considering, whether the art of deciphering could not be applied to languages, so as to translate for instance, a Hebrew book without understanding Hebrew. See Morhof, De variis Scripturæ Modis, "Polyhist." tom. i. lib. iv. cap. 2, and Mr. Falconer's "Cryptomenysis Patefacta."—*Shaw.*

a neglect of many useful things relating to it. We, therefore, think proper to advance a substantial and capital doctrine of method, under the general name of traditive prudence. But as the kinds of method are various, we shall rather enumerate than divide them; but for one only method, and perpetually splitting and subdividing, it scarce need be mentioned, as being no more than a light cloud of doctrine that soon blows over, though it also proves destructive to the sciences, because the observers thereof, when they wrest things by the laws of their method, and either omit all that do not justly fall under their divisions, or bend them contrary to their own nature, squeeze, as it were, the grain out of the sciences, and grasp nothing but the chaff—whence this kind of method produces empty compendiums, and loses the solid substance of the sciences.[1]

Let the first difference of method be, therefore, between the doctrinal and initiative. By this we do not mean that the initiative method should treat only of the entrance into

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[1] The design of Ramus, whose method of Dichotomies is here censured, was to reduce all divisions and subdivisions to two members, with a view to obtain a basis for the construction of dilemmas and disjunctive syllogisms. We are never certain that these species of reasoning are legitimate, except when the divisions out of which they rise are exact; and the only test of this accuracy is to be sought in a dichotomous contradictory division, where the supposition of one member necessarily leads to the exclusion of the other. This method of exhausting a subject by an analytic exhaustion of its parts, which he mainly derived from Plato, has its proper sphere in logic; and though condemned in the text, was employed by Bacon in many of his prerogative instances. The error of Ramus consisted in taking only a part for the whole of logic, and applying what is strictly applicable to subjects of a peculiar nature, to the whole range of inference. It is evident, however, that the dichotomous process can only be employed in the investigation of subjects which admit of a twofold contradictory division, and that where the primitive elements are composed of four or five distinct members, the method is totally inapplicable. Its use, therefore, ought to be attended with the greatest caution, as the Ramist can hardly be certain that the twofold division, in many cases, is not more apparent than real, and that a further analysis would not necessitate a multiform classification. For want of this foresight, Ramus, with all his subtilty, falls into inconceivable errors, and a great many of Bacon's exemplifications of his method in the crucial instance are direct paralogisms. Milton framed a logic on the model of Ramus's method, seduced rather by the bold antagonism of the latter against Aristotle, than by its philosophic justness. Both the original and the copy are now forgotten, and Ramus is committed to the judgment of posterity rather on his absurdities than his merits. See Hooker, i. 6, with Keble's note.—*Ed.*

the sciences, and the other their entire doctrine; but borrowing the word from religion, we call that method initiative which opens and reveals the mysteries of the sciences; so that as the doctrinal method teaches, the initiative method should intimate, the doctrinal method requiring a belief of what is delivered, but the initiative rather that it should be examined. The one deals out the sciences to vulgar learners; the other as to the children of wisdom—the one having for its end the use of the sciences as they now stand, and the other their progress and further advancement. But this latter method seems deserted; for the sciences have hitherto been delivered as if both the teacher and the learner desired to receive errors by consent—the teacher pursuing that method which procures the greatest belief to his doctrine, not that which most commodiously submits it to examination, while the learner desires present satisfaction without waiting for a just inquiry, as if more concerned not to doubt than not to mistake. Hence the master, through desire of glory, never exposes the weakness of his own science, and the scholar, through his aversion to labor, tries not his own strength; whereas knowledge, which is delivered to others as a web to be further wove, should if possible be introduced into the mind of another in the manner it was first procured; and this may be done in knowledge acquired by induction; but for that anticipated and hasty knowledge we have at present it is not easy for the possessor to say by what road he came at it. Yet in a greater or less degree any one might review his knowledge, trace back the steps of his own thoughts, consent afresh, and thus transplant his knowledge into the mind of another as it grew up in his own. For it is in arts as in trees—if a tree were to be used, no matter for the root, but if it were to be transplanted, it is a surer way to take the root than the slips. So the transplantation now practiced of the sciences makes a great show, as it were, of branches, that without the roots may be fit indeed for the builder, but not for the planter. He who would promote the growth of the sciences should

be less solicitous about the trunk or body of them, and bend his care to preserve the roots, and draw them out with some little earth about them. Of this kind of transplantation there is some resemblance in the method of mathematicians;[2] but in general we do not see that it is either used or inquired after; we therefore place it among the deficiencies, under the name of the traditive lamp, or a method for posterity.[3]

There is another difference of method, bearing some relation to the former intention, though in reality almost opposite to it; both of them have this in common, that they separate the vulgar audience from the select; but herein they are opposite, that the former introduces a more open and the other a more secret way of instruction than the common; hence let them be distinguished, by terming the former plain or open, and the latter the learned or concealed method, thus transferring to the manner of delivery the difference made use of by the ancients, especially in publishing their books. This concealed or enigmatical method was itself also employed by the ancients with prudence and judgment, but is of late dishonored by many, who use it as a false light to set off their counterfeit wares. The design of it seems to have been, by the veil of tradition, to keep the vulgar from the secrets of sciences, and to admit only such as had, by the help of a master, attained to the interpretation of dark sayings, or were able, by the strength of their own genius, to enter within the veil.

The next difference of method is of great moment with regard to the sciences, as these are delivered either in the way of aphorism or methodically. It highly deserves to be

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[2] To this purpose see Wolfius' "Brevis Commentatio de Methodo Mathematica," prefixed to his "Elementa Matheseos Universæ"; as also his "Logics and Metaphysics."—*Shaw.*

[3] Perhaps M. Tschirnhaus's "Medicina Mentis, sive Tentamen genuinæ Logicæ, in qua disseritur de Methodo detegendi incognitas Veritates," may pave the way for supplying this desideratum; proceeding as it does upon a mathematical and algebraical foundation, to raise a method of discovering unknown truths.—*Shaw.*

noted, that the general custom is, for men to raise as it were a formal and solemn art from a few axioms and observations upon any subject, swelling it out with their own witty inventions, illustrating it by examples, and binding the whole up into method. But that other way of delivery by aphorisms has numerous advantages over the methodical. And first, it gives us a proof of the author's abilities, and shows whether he has entered deep into his subject or not. Aphorisms are ridiculous things, unless wrought from the central parts of the sciences; and here all illustration, excursion, variety of examples, deduction, connection, and particular description, is cut off, so that nothing besides an ample stock of observations is left for the matter of aphorisms. And, therefore, no person is equal to the forming of aphorisms, nor would ever think of them, if he did not find himself copiously and solidly instructed for writing upon a subject. But in methods so great a power have order, connection, and choice—

> ——"Tantum series juncturaque pollet;
> Tantum de medio sumptis accedit honoris"—[4]

that methodical productions sometimes make a show of I know not what specious art, which, if they were taken to pieces, separated, and undressed, would fall back again almost to nothing. Secondly, a methodical delivery has the power of enforcing belief and consent, but directs not much to practical indications, as carrying with it a kind of demonstration in circle, where the parts mutually enlighten each other, and so gratifies the imagination the more; but as actions lie scattered in common life, scattered instructions suit them the best. Lastly, as aphorisms exhibit only certain scraps and fragments of the sciences, they carry with them an invitation to others for adding and lending their assistance, whereas methods dress up the sciences into bodies, and make men imagine they have them complete.

There is a further difference of method, and that too

[4] Hor. Art. Poet. 242.

very considerable; for as the sciences are delivered either by assertions with their proofs, or by questions with their answers, if the latter method be pursued too far, it retards the advancement of the sciences no less than it would the march of an army, to be sitting down against every little fort in the way; whereas, if the better of the battle be gained, and the fortune of the war steadily pursued, such lesser places will surrender of themselves, though it must be allowed unsafe to leave any large and fortified place at the back of the army. In the same manner confutations are to be avoided or sparingly used in delivering the sciences, so as only to conquer the greater prejudices and prepossessions of the mind, without provoking and engaging the lesser doubts and scruples.

Another difference of method lies in suiting it to the subject; for mathematics, the most abstract and simple of the sciences, is delivered one way, and politics, the more compound and perplexed, another. For a uniform method cannot be commodiously observed in a variety of matter. And as we approve of particular topics for invention, so we must in some measure allow of particular methods of delivery.

There is another difference of method to be used with judgment in delivering the sciences, and this is governed by the informations and anticipations of the science to be delivered that are before infused and impressed upon the mind of the learner. For that science which comes as an entire stranger to the mind is to be delivered one way, and that which is familiarized by opinions already imbibed and received another. And therefore, Aristotle, when he thought to chastise, really commended Democritus, in saying, "If we would dispute in earnest, and not hunt after comparisons," etc.; as if he would tax Democritus with being too full of comparisons; whereas they whose instructions are already grounded in popular opinion have nothing left them but to dispute and prove, while others have a double task whose doctrines transcend the vulgar opinions;

viz., first to render what they deliver intelligible, and then to prove it; whence they must of necessity have recourse to simile and metaphor, the better to enter the human capacity.[5] Hence we find in the more ignorant ages, when learning was in its infancy, and those conceptions which are now trite and vulgar were new and unheard of, everything was full of parables and similitudes, otherwise the things then proposed would either have been passed over without due notice and attention, or else have been rejected as paradoxes. For it is a rule in the doctrine of delivery, that every science which comports not with anticipations and prejudices must seek the assistance of similies and allusions. And thus much for the different kinds of methods, which have not hitherto been observed; but for the others, as the analytic, systatic, diæretic, cryptic, homeric, etc., they are already justly discovered and ranged.

Method has two parts, one regarding the disposition of a whole work or the subject of a book, and the other the limitation of propositions. For architecture not only regards the fabric of the whole building, but also the figure of the columns, arches, etc.; for method is as it were the architecture of the sciences. And herein Ramus has deserved better, by reviving the ancient rules of method,[6] than by obtruding his own dichotomies. But I know not by what fatality it happens that, as the poets often feign, the most precious things have the most pernicious keepers. Doubtless the endeavors of Ramus about the reduction of propositions threw him upon his epitomes, and the flats and shallows of the sciences: for it must be a fortunate and well-directed genius that shall attempt to make the axioms of the sciences convertible, and not at the same time render them circular, that is, keep them from returning into them-

[5] The reader will bear in mind that this was the situation of the author in his time, and on that account dispense with his figurative style, though it may not be altogether so necessary at present, when we are accustomed to the freest range of philosophical inquiry.—*Ed.*

[6] Κάθολον πρῶτον, κατὰ ραντὸς, καθ' αὐτὸ, κ.τ.λ.: relation to the first principle, relation to all, and relation to one's self.

selves.[1] And yet the attempt of Ramus in this way has not been useless.

There are still two other limitations of propositions, besides that for making them convertible—the one for extending and the other for producing them. For if it be just that the sciences have two other dimensions, besides depth, viz., length and breadth, their depth bearing relation to their truth and reality, as these are what constitute their solidity; their breadth may be computed from one science to another, and their length from the highest degree to the lowest in the same science—the one comprehends the ends and true boundaries of the sciences, whence propositions may be treated distinctly, and not promiscuously, and all repetition, excursion, and confusion avoided; the other prescribes a rule how far and to what particular degree the propositions of the sciences are to be reduced. But no doubt something must here be left to practice and experience; for men ought to avoid the extreme of Antoninus Pius, and not mince cumin-seed in the sciences, nor multiply divisions to the utmost. And it is here well worth the inquiry, how far we should check ourselves in this respect; for we see that too extensive generals, unless they be reduced, afford little information, but rather expose the sciences to the ridicule of practical men, as being no more fitted for practice than a general map of the world to show the road from London

[1] The axioms in the text must not be understood as applying to the mathematical sciences, which being, as Condillac observes, purely ideal, exact in their conversion nothing more than a detailed exposition of the properties we have already included in their definition; but of the objective sciences, where, since our knowledge of the subject is generally so imperfect as to render any direct definition uncertain, we are obliged to involve ourselves in a chain of reasoning to prove that the interchangeable attribute can be affirmed of the subject in its whole extent, and that both possess no qualities which are not convertible with each other. In establishing this reciprocal accordance of parts, it frequently happens that, having to connect a series of propositions in a chain of mutual dependence on each other, the first being proved by the second and the second by the third, etc., we arrive at and rest the whole proof upon a conclusion which is nothing else than the enunciation of the very proposition which we are laboring to establish, instead of grounding the argument upon some universally admitted principle or well-ascertained fact. This fallacy logicians term a vicious circle, and is the error to which Bacon alludes in the text.—*Ed.*

to York. The best rules may well be compared to a metalline speculum, which represents the images of things, but not before it is polished; for so rules and precepts are useful after having undergone the file of experience. But if these rules could be made exact and clear from the first, it were better, because they would then stand in less need of experience.

We must not omit that some men, rather ostentatious than learned, have labored about a certain method not deserving the name of a true method, as being rather a kind of imposture, which may nevertheless be acceptable to some busy minds. This art so scatters the drops of the sciences, that any pretender may misapply it for ostentation, with some appearance of learning. Such was the art of Lully, and such the typocosmia cultivated by some; for these are only a collection of terms of art heaped together, to the end that those who have them in readiness may seem to understand the arts whereto the terms belong. Collections of this kind are like a piece-broker's shop, where there are many slips, but nothing of great value. And thus much for the science which we call traditive prudence.[8]

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[8] Concio, who preceded Bacon, anticipates, in his treatise "De Methodo," many of the fundamental principles of the inductive logicians, and discriminates many branches of analysis, which they confound. Descartes, in his book on the same subject, has endeavored to reduce the whole business of method to four rules, which, however, are found in the precepts of Aristotle. Johan. Beyer undertook to write upon this subject, in his "Filum Labyrinthi," according to the design of Bacon, but appears not to have understood the author, and has rather obscured his doctrine than improved it. M. Tschirnhaus, however, has treated the subject more suitably to its merit, in his "Medicina Mentis," mentioned above, in the note to § 2. A great variety of methods have been advanced by different authors, an ample catalogue of whom may be found in Morhof's "Polyhist." tom. i. lib. ii. cap. 7," "De Methodis Variis."—*Ed.*

CHAPTER III

The Grounds and Functions of Rhetoric. Three Appendices which belong only to the Preparatory Part, viz., the Colors of Good and Evil, both simple and composed; the Antithesis of Things (the *pro* and *con* of General Questions); the Minor Forms of Speech (the Elaboration of Exordiums, Perorations, and Leading Arguments)

WE NEXT proceed to the doctrine of ornament in speech, called by the name of rhetoric or oratory. This in itself is certainly an excellent science, and has been laudably cultivated by writers. But to form a just estimate, eloquence is certainly inferior to wisdom. The great difference between them appears in the words of God to Moses upon his refusing, for want of elocution, the charge assigned him: "Aaron shall be thy speaker, and thou shalt be to him as God."[1] But for advantage and popular esteem, wisdom gives place to eloquence. "The wise in heart shall be called prudent, but the sweet of tongue shall find greater things," says Solomon:[2] clearly intimating that wisdom procures a name and admiration, but that eloquence is of greater efficacy in business and civil life. And for the cultivation of this art, the emulation between Aristotle and the rhetoricians of his time, the earnest study of Cicero, his long practice and utmost endeavor every way to dignify oratory, has made these authors even exceed themselves in their books upon the subject. Again, the great examples of eloquence found in the orations of Demosthenes and Cicero, added to the perfection and exactness of their precepts, have doubled its advancement. And therefore the deficiencies we find in it rather turn upon certain collections belonging to its train, than upon the doctrine and use of the art itself.

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[1] Exodus iv. 14, 15, 16. [2] Prov. i. 21.

But in our manner to open and stir the earth a little about the roots of this science, certainly rhetoric is subservient to the imagination, as logic is to the understanding. And if the thing be well considered, the office and use of this art is but to apply and recommend the dictates of reason to the imagination, in order to excite the affections and will. For the administration of reason is disturbed three ways; viz., 1, either by the insnaring of sophistry, which belongs to logic; 2, the delusion of words, which belongs to rhetoric; or 3, by the violence of the affections, which belongs to ethics. For as in transacting business with others, men are commonly overreached, or drawn from their own purposes either by cunning, importunity, or vehemence; so in the inward business we transact with ourselves, we are either, 1, undermined by the fallacy of arguments; 2, disquieted and solicited by the assiduity of impressions and observations; or 3, shaken and carried away by the violence of the passions. Nor is the state of human nature so unequal, that these arts and faculties should have power to disturb the reason, and none to confirm and strengthen it; for they do this in a much greater degree. The end of logic is to teach the form of arguments for defending, and not for insnaring, the understanding. The end of ethics is so to compose the affections, that they may co-operate with reason, and not insult it. And lastly, the end of rhetoric is to fill the imagination with such observations and images as may assist reason, and not overthrow it. For the abuses of an art come in obliquely only, and not for practice, but caution. It was therefore great injustice in Plato, though it proceeded from a just contempt of the rhetoricians of his time, to place rhetoric among the voluptuary arts,[3] and resemble it to cookery, which corrupted wholesome meats, and, by variety of sauces, made unwholesome ones more palatable. For speech is, doubtless, more employed to adorn virtue than to color

[3] As it was in Bacon to place painting and music in the same category.

vice. This faculty is always ready, for every man speaks more virtuously than he either thinks or acts. And it is excellently observed by Thucydides, that something of this kind was usually objected to Cleon;[4] who, as he always defended the worst side of a cause, was ever inveighing against eloquence and the grace of speech, well knowing that no man could speak gracefully upon a base subject, though every man easily might upon an honorable one: for Plato elegantly observed, though the expression is now grown trite, that if virtue could be beheld, she would have great admirers.[5] But rhetoric, by plainly painting virtue and goodness, renders them, as it were, conspicuous; for as they cannot be seen by the corporeal eye, the next degree is to have them set before us as lively as possible by the ornament of words and the strength of imagination. The Stoics, therefore, were deservedly ridiculed by Cicero for endeavoring to inculcate virtue upon the mind by short and subtile sentences, and conclusions,[6] which have little or no relation to the imagination and the will.

Again, if the affections were orderly and obedient to reason, there would be no great use of persuasion and insinuation to gain access to the mind; it would then be sufficient that things themselves were nakedly and simply proposed and proved; but, on the contrary, the affections revolt so often, and raise such disturbances and seditions—

——"Video meliora, proboque;
Deteriora sequor" [7]—

that reason would perfectly be led captive, did not the persuasion of eloquence win over the imagination from the side of the passions, and promote an alliance between it and reason against the affections. For we must observe that the affections themselves always aim at an apparent good, and in this respect have something common with reason. But here lies the difference, that the affections principally

[4] B. iii. 42.
[5] Phedias.
[6] Orator. ii. 38; Tusc. Disp. ii. 18, 42.
[7] Ovid, Metam. vii. 20.

regard a present good, while reason, seeing far before it, chooses also the future and capital good. And therefore, as present things strike the imagination strongest, reason is generally subdued; but when eloquence and the power of persuasion raise up remote and future objects, and set them to view as if they were present; then imagination goes over to the side of reason, and renders it victorious.

Hence we conclude, that rhetoric can no more be accused of coloring the worst part, than logic of teaching sophistry. For we know that the doctrines of contraries are the same, though their use be opposite; and logic does not only differ from rhetoric, according to the vulgar notion, as the first is like the hand clenched, and the other like the hand open; but much more in this, that logic considers reason in its natural state, and rhetoric as it stands in vulgar opinion; whence Aristotle prudently places rhetoric between logic and ethics, along with politics, as partaking of them both. For the proofs and demonstrations of logic are common to all mankind, but the proof and persuasion of rhetoric must be varied according to the audience, like a musician suiting himself to different ears.

"Orpheus in sylvis, inter Delphinas Arion." [8]

And this application and variation of speech should, if we desire its perfection, extend so far, that if the same things were to be delivered to different persons, yet a different set of words should be used to each.[9] Though it is certain that the greatest orators, generally, have not this political and sociable eloquence in private discourse; for while they endeavor at ornament and elegant forms of speech, they fall not upon that ready application and familiar style of discourse which they might with more advantage use to particulars. And it were certainly proper to begin a new inquiry

[8] Virg. Ecl. viii. 56.

[9] For one of the most perfect exemplifications of this rule, see Lord Brougham's discourse to the Glasgow University and to the Manchester Mechanics' Institution.—*Ed.*

into this subject; we therefore place it among the deficiencies under the title of prudential conversation,[10] which the more attentively a man considers, the higher value he will set upon it; but whether this be placed under rhetoric or politics is of no great significance.

We have already observed that the desiderata in this art are rather appendages than parts of the art itself; and all of them belong to the repository thereof, for the furnishing of speech and invention. To proceed in this view; first, we find no writer that hath carefully followed the prudent example of Aristotle, who began to collect popular marks or colors of apparent good and evil, as well simple as comparative.[11] These, in reality, are but rhetorical sophisms, though of excellent use, especially in business and private discourse. But the labor of Aristotle about these colors has three defects; for 1, though they are numerous, he recites but few; 2, he has not annexed their redargutions; and 3, he seems not to have understood their full use: for they serve as well to affect and move as to demonstrate. There are many forms of speech which, though significative of the same things, yet affect men differently; as a sharp instrument penetrates more than a blunt one, supposing both of them urged with equal force. There is nobody but would be more affected by hearing this expression, How your enemies will triumph upon this:

"Hoc Ithacus velit, et magno mercentur Atridæ," [12]

than if it were simply said, This will injure your affairs: therefore these stings and goads of speech are not to be neglected. And since we propose this as a desideratum, we will, after our manner, give a sketch of it, in the way of examples; for precepts will not so well illustrate the

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[10] The foundations for this are, in some measure, laid by the learned Morhof in the sketch of his "Homiletice Erudita." See "Polyhistor," tom. i. lib. i. cap. 25. See also Jo. Andr. Bosii "De Prudentia et Eloquentia Civili comparanda," ed. Jenæ, 1698; and "Prudentia Consultatoria in Usum Auditorii Thomasiani," ed. Halæ Magdeburg, 1721.—*Ed.*

[11] Rhetor. ii. 3–8.

[12] Æneid, ii. 104.

thing. In deliberatives, we inquire what is good, what evil; and of good, which is the greater, and of evil, which the less. Whence the persuader's task is to make things appear good or evil, and that in a higher or lower degree; which may be performed by true and solid reasons, or represented by colors, popular glosses, and circumstances of such force as to sway an ordinary judgment; or even a wise man that does not fully and considerately attend to the subject. But besides this power to alter the nature of the subject in appearance, and so lead to error, they are of use to quicken and strengthen such opinions and persuasions as are true; for reasons nakedly delivered, and always after one manner, enter but heavily, especially with delicate minds; whereas, when varied and enlivened by proper forms and insinuations, they cause a stronger apprehension, and often suddenly win the mind to a resolution. Lastly, to make a true and safe judgment, nothing can be of greater use and preservation to the mind than the discovery and reprehension of these colors, showing in what cases they hold and in what not; which cannot be done without a comprehensive knowledge of things; but when performed it clears the judgment, and makes it less apt to slip into error.[13]

Sophism I.—What men praise and celebrate, is good; what they dispraise and censure, evil

This sophism deceives four ways; viz., either through ignorance, deceit, party, or the natural disposition of the praiser or dispraiser. 1. Through ignorance; for what signifies the judgment of the rabble in distinguishing good and evil? Phocion took it right, who, being applauded by

[13] This paragraph is taken from the fragment of the Colors of Good and Evil, usually printed as an appendix to the author's essays. That fragment was reconsidered, better digested, and finished by the author, in order to fit it for this place, in the De Augmentis Scientiarum; to which himself assigned it in the Latin edition. The reason of its being called a fragment was, that the author had made a large collection of such kind of sophisms in his youth; but could only find time, in his riper years, to add the fallacies and confutations of the following twelve.—*Shaw.*

the multitude, asked, What he had done amiss?[14] 2. Through deceit; for those who praise or dispraise commonly have their own views in it, and speak not their real sentiments.

"Laudat venales, qui vult extrudere, merces." [15]

"It is faulty, it is faulty, says the buyer; but when he is gone, he congratulates himself upon the bargain." [16] 3. Through party; for men immoderately extol those of their own and depress those of the opposite party. 4. Through disposition or temper; for some men are naturally formed servile and fawning, and others captious and morose; so that when such persons praise or dispraise, they do but gratify their humor, without much regard to truth.

II.—What is commended, even by an enemy, is a great good; but what is censured, even by a friend, a great evil

The fallacy seems to lie here, that it is easily believed the force of truth extorts from us what we speak against our inclination.

This color deceives through the subtilty both of friends and enemies. For praises of enemies are not always against their will, nor forced from them by truth; but they choose to bestow them where they may create envy or danger to their adversary. Hence the foolish conceit was current among the Greeks, that he who was praised by another with malicious intent, never failed to have his nose disfigured with a pustule. Again this color deceives, because enemies sometimes use praises like prefaces, that they may the more freely calumniate afterward. On the other side, it deceives by the craft of friends, who also sometimes acknowledge our faults, and speak of them not as compelled thereto by any force of truth, but touch only such as may do little hurt, and make us, in everything else, the best men in the world. And lastly, it deceives, because friends also use their reproofs, as enemies do their commendations,

[14] Plutarch. [15] Hor. Epist. ii. 11. [16] Prov. xx.

by way of preface, that they may afterward launch out more fully in our praises.

III. —To be deprived of a good, is an evil; and to be deprived of an evil, a good

This color deceives two ways; viz., either by the comparison of good and evil, or by the succession of good to good, or evil to evil. 1. By comparison: thus if it were good for mankind to be deprived of acorns, it follows not that such food was bad, but that acorns were good, though bread be better. Nor, if it were an evil for the people of Sicily to be deprived of Dionysius the Elder, does it follow that the same Dionysius was a good prince, but that he was less evil than Dionysius the Younger. 2. By succession: for the privation of a good does not always give place to an evil, but sometimes to a greater good—as when the blossom falls, the fruit succeeds. Nor does the privation of an evil always give place to a good, but sometimes to a greater evil; for Milo, by the death of his enemy Clodius, lost a fair harvest of glory.

IV.—What approaches to good, is good; and what recedes from good, is evil

It is almost universal, that things agreeing in nature agree also in place, and that things disagreeing in nature differ as widely in situation; for all things have an appetite of associating with what is agreeable, and of repelling what is disagreeable to them.

This color deceives three ways; viz., by depriving, obscuring and protecting. 1. By depriving: for the largest things, and most excellent in their kind, attract all they can to themselves, and leave what is next them destitute; thus the underwood growing near a large tree is the poorest wood of the field, because the tree deprives it of sap and nourishment—whence it was well said, that the servants of the rich are the greatest slaves;[17] and it was witty of him who compared the inferior attendants in the courts of princes to the vigils of feast days, which, though nearest to feast

[17] Divitis servi maxime servi.

days, are themselves but meagre. 2. By obscuring: for it is also the nature of excellent things in their kind, though they do not impoverish the substance of what lies near them, yet to overshadow and obscure it; whence the astrologers say, that though in all the planets conjunction is the most perfect amity, yet the sun, though good in aspect, is evil in conjunction. 3. By protecting: for things come together, not only from a similitude of nature, but even what is evil flies to that which is good (especially in civil society) for concealment and protection. Thus hypocrisy draws near to religion for shelter:

"Sæpe latet vitium proximitate boni." [18]

So sanctuary men, who were commonly malefactors, used to be nearest the priests and prelates; for the majesty of good things is such, that the confines of them are reverend. On the other side, good draws near to evil, not for society, but for conversation and reformation; and hence physicians visit the sick more than the sound, and hence it was objected to our Saviour, that he conversed with publicans and sinners.[19]

V.—As all parties challenge the first place, that to which the rest unanimously give the second seems the best; each taking the first place out of affection to itself, but giving the second where it is really due

Thus Cicero attempted to prove the Academics to be the best sect; for, saith he, "Ask a Stoic which philosophy is best, and he will prefer his own; then ask him which is the next best, and he will confess, the Academics. Ask an Epicurean the same question, who can scarce endure the Stoic, and as soon as he hath placed his own sect, he places the Academics next him." [20] So if a prince separately examined several competitors for a place, perhaps the ablest and most deserving man would have most second voices.

This color deceives in respect of envy; for men are accustomed, next after themselves and their own faction, to prefer those that are softest and most pliable, with intent

[18] Ovid, Ars Amandi, ii. 662. [19] Matt. ix.
[20] Academ. Frag. By Varro.

to exclude such as would obstruct their measures; whence this color of meliority and pre-eminence becomes a sign of enervation and weakness.

VI.—That is absolutely best the excellence whereof is greatest

This color has these forms—let us not wander in generals, let us compare particular with particular, etc., and though it seem strong, and rather logical than rhetorical, yet it is sometimes a fallacy:—1. Because many things are exposed to great danger, but if they escape, prove more excellent than others; whence their kind is inferior, as being subject to accident and miscarriage, though more noble in the individual. Thus, to instance, in the blossoms of March, one whereof, according to the French proverb, is, if it escape accidents, worth ten blossoms of May; so that though in general the blossoms of May excel the blossoms of March, yet in individuals the best blossoms of March may be preferred to the best of May. 2. Because the nature of things in some kinds or species is more equal, and in others more unequal. Thus warm climates generally produce people of a sharper genius than cold ones; yet the extraordinary geniuses of cold countries usually excel the extraordinary geniuses of the warmer. So in the case of armies, if the cause were tried by single combat, the victory might often go on the one side, but if by a pitched battle, on the other; for excellences and superiorities are rather accidental things, while kinds are governed by nature or discipline. 3. Lastly, many kinds have much refuse, which countervails what they have of excellent; and, therefore, though metal be generally more precious than stone, yet a diamond is more precious than gold.

VII.—What keeps a matter safe and entire, is good; but what leaves no retreat, is bad: for inability to retire is a kind of impotence, but power is a good

Thus Æsop feigned that two frogs consulting together in a time of drought what was to be done, the one proposed going down into a deep well, because probably the water would not fail there, but the other answered, "If it should

fail there, too, how shall we get up again?" And the foundation of the color lies here, that human actions are so uncertain and exposed to danger, that the best condition seems to be that which has most outlets. And this persuasion turns upon such forms as these—You shall engage yourself; You shall not be your own carver; You shall keep the matter in your hands, etc.[21]

The fallacy of the sophism lies here:—1. Because fortune presses so close upon human affairs, that some resolution is necessary; for not to resolve is to resolve, so that irresolution frequently entangles us in necessities more than resolving. And this seems to be a disease of the mind, like to that of covetousness, only transferred from the desire of possessing riches to the desire of free will and power; for as the covetous man enjoys no part of his possessions, for fear of lessening them, so the unresolved man executes nothing, that he may not abridge his freedom and power of acting. 2. Because necessity and the fortune of the throw adds a spur to the mind; whence that saying, "In other respects equal, but in necessity superior." [22]

VIII.—That evil we bring upon ourselves, is greater; and that proceeding from without us, less

Because remorse of conscience doubles adversity, as a consciousness of one's own innocence is a great support in affliction—whence the poets exaggerate those sufferings most, and paint them leading to despair, wherein the person accuses and tortures himself.

"Seque unam clamat causamque, caputque malorum." [23]

On the other side, persons lessen and almost annihilate their misfortunes, by reflecting upon their own innocence and merit. Besides, when the evil comes from without, it leaves

[21] Sertorius having so far obstructed Pompey as to burn one of the towns of his allies in his sight, without experiencing from him the slightest opposition, added, with scorn, "I will teach this young scholar of Sylla, that it is more necessary for a general to look behind than before him"—a piece of advice, we need hardly say, since the whole of life is a combat, as applicable to civil as to military warfare.—*Ed.*

[22] Livy, iv. 28.

[23] Æneid, xii. 600.

a man to the full liberty of complaint, whereby he spends his grief and eases his heart; for we conceive indignation at human injuries, and either meditate revenge ourselves, or implore and expect it from the Divine vengeance. Or if the injury came from fortune itself, yet this leaves us to an expostulation with the Divine Powers—

"Atque Deos, atque astra, vocat crudelia mater." [24]

But if the evil be derived from ourselves, the stings of grief strike inward, and stab and wound the mind the deeper.

This color deceives—1. By hope, which is the greatest antidote to evils; for it is commonly in our power to amend our faults, but not our fortunes; whence Demosthenes said frequently to the Athenians, "What is worst for the past is best for the future, since it happens by neglect and misconduct that your affairs are come to this low ebb. Had you, indeed, acted your parts to the best, and yet matters should thus have gone backward, there would be no hopes of amendment; but as it has happened principally through your own errors, if these are corrected, all may be recovered." [25] So Epictetus, speaking of the degrees of the mind's tranquillity, assigns the lowest place to such as accuse others, a higher to those who accuse themselves, but the highest to those who neither accuse themselves nor others. 2. By pride, which so cleaves to the mind that it will scarce suffer men to acknowledge their errors; and to avoid any such acknowledgment they are extremely patient under those misfortunes which they bring upon themselves; for as, when a fault is committed, and before it be known who did it, a great stir and commotion is made; but if at length it appears to be done by a son or a wife, the bustle is at an end. And thus it happens when one must take a fault to one's self. And hence we frequently see that women, when they do anything against their friends' consent, whatever misfortune follows, they seldom complain, but set a good face on it.

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[24] Virg. Ecl. v. 23. [25] Philip. i.

IX.—The degree of privation seems greater than that of diminution, and the degree of inception greater than that of increase

It is a position in mathematics, that there is no proportion between something and nothing, and therefore the degrees of nullity and quiddity seem larger than the degrees of increase and decrease, as it is for a monoculus to lose an eye than for a man who has two. So if a man has lost several children, it gives him more grief to lose the last than all the rest, because this was the hope of his family. Therefore, the Sibyl, when she had burned two of her three books, doubled her price upon the third, because the loss of this would only have been a degree of privation, and not of diminution.

This color deceives—1. In things whose use and service lie in a sufficiency, competency, or determinate quantity: thus if a man were to pay a large sum upon a penalty, it might be harder upon him to want twenty shillings for this than ten pounds for another occasion. So in running through an estate, the first step toward it—viz., breaking in upon the stock—is a higher degree of mischief than the last, viz., spending the last penny. And to this color belong those common forms—It is too late to pinch at the bottom of the purse; As good never a whit as never the better, etc. 2. It deceives from this principle in nature, that the corruption of one thing is the generation of another; whence the ultimate degree of privation itself is often less felt, as it gives occasion and a spur to some new course. So when Demosthenes rebuked the people for hearkening to the dishonorable and unequal conditions of King Philip, he called those conditions the food of their sloth and indolence, which they had better be without, because then their industry would be excited to procure other remedies. So a blunt physician whom I knew, when the delicate ladies complained to him, they were they could not tell how, yet could not endure to take physic, he would tell them their way was to be sick, for then they would be glad to take anything. 3. Nay, the degree of privation itself, or the

extremest indigence, may be serviceable, not only to excite our industry, but to command our patience.

The second part of this sophism stands upon the same foundation, or the degrees between something and nothing; whence the commonplace of extolling the beginnings of everything, Well begun is half done, etc.

"Dimidium facti, qui cœpit, habet." [26]

And hence the superstition of the astrologers, who judge the disposition and fortune of a man from the instant of his nativity or conception.

This color deceives—1. Because many beginnings are but imperfect offers and essays, which vanish and come to nothing without repetition and further advancement; so that here the second degree seems more worthy and powerful than the first, as a body-horse in a team draws more than the fore-horse: whence it is not ill said, The second word makes the quarrel; for the first might perhaps have proved harmless if it had not been retorted; therefore the first gives the occasion indeed, but the second makes reconciliation more difficult. 2. This sophism deceives by weariness, which makes perseverance of greater dignity than inception; for chance or nature may give a beginning, but only settled affection and judgment can give continuance. 3. It deceives in things whose nature and common course carries them contrary to the first attempt, which is therefore continually frustrated, and gets no ground unless the force be redoubled: hence the common forms—Not to go forward is to go backward—running up hill—rowing against the stream, etc. But if it be with the stream, or with the hill, then the degree of inception has by much the advantage. 4. This color not only reaches to the degree of inception from power to action, compared with the degree from action to increase, but also to the degree from want of power to power, compared with the degree from power to action;

[26] Hor. Epist. 1, ii. 40.

for the degree from want of power to power seems greater than that from power to action.

X.—What relates to truth is greater than what relates to opinion; but the measure and trial of what relates to opinion is what a man would not do if he thought he were secret

So the Epicureans pronounce of the stoical felicity placed in virtue, that it is the felicity of a player, who, left by his audience, would soon sink in his spirit; whence they in ridicule call virtue a theatrical good; but it is otherwise in riches—

"Populus me sibilat; at mihi plaudo," [27]

and pleasure,

——"Grata sub imo
Gaudia corde premens, vultu simulante pudorem," [28]

which are felt more inwardly.

The fallacy of this color is somewhat subtile, though the answer to the example be easy, as virtue is not chosen for the sake of popular fame, and as every one ought principally to reverence himself; so that a virtuous man will be virtuous in a desert as well as a theatre, though perhaps virtue is made somewhat more vigorous by praise, as heat by reflection. But this only denies the supposition, and does not expose the fallacy. Allowing, then, that virtue, joined with labor, would not be chosen but for the praise and fame which usually attend it, yet it is no consequence that virtue should not be desired principally for its own sake, since fame may be only an impellent, and not a constituent or efficient cause. Thus, if when two horses are rode without the spur, one of them performs better than the other, but with the spur the other far exceeds, this will be judged the better horse: and to say that his mettle lies in the spur, is not making a true judgment; for since the spur is a common instrument in horsemanship, and no impediment or burden to the horse, he will not be esteemed the worse horse that wants it, but the going well without it is rather a point of delicacy than perfection. So glory

[27] Hor. i. Sat. i. 66. [28] Ibid.

and honor are the spurs to virtue, which, though it might languish without them, yet since they are always at hand unsought, virtue is not less to be chosen for itself, because it needs the spur of fame and reputation, which clearly confutes the sophism.

XI.—What is procured by our own virtue and industry is a greater good; and what by another's, or by the gift of fortune, a less

The reasons are—1. Future hope, because in the favors of others, or the gifts of fortune, there is no great certainty; but our own virtue and abilities are always with us: so that when they have purchased us one good, we have them as ready, and by use better edged to procure us another. 2. Because what we enjoy by the benefit of others carries with it an obligation to them for it, whereas what is derived from ourselves comes without clog or encumbrance. Nay, when the Divine Providence bestows favors upon us, they require acknowledgments and a kind of retribution to the Supreme Being; but in the other kind, men rejoice (as the prophet speaks), and are glad; they offer to their toils, and sacrifice to their nets.[29] 3. Because what comes to us unprocured by our own virtue, yields not that praise and reputation we affect; for actions of great felicity may produce much wonder, but no praise: so Cicero said to Cæsar, "We have enough to admire, but want somewhat to praise."[30] 4. Because the purchases of our own industry are commonly joined with labor and struggle, which have not only some sweetness themselves, but give an edge and relish to enjoyment. Venison is sweet to him that kills it.[31]

There are four opposites or counter-colors to this sophism, and may serve as confutations to the four preceding colors respectively. 1. Because felicity seems to be a work of the Divine favor, and accordingly begets confidence and alacrity in ourselves, as well as respect and reverence from others. And this felicity extends to casual things, which

[29] Habac. i. 15, 16.

[30] "Quæ miremur habemus, quæ laudemus expectamus."—Orat. pro Marcellus.

[31] Suavis cibus à venatu.

human virtue can hardly reach. So when Cæsar said to the master of the ship in a storm, "Thou carriest Cæsar and his fortune"; if he should have said, "Thou carriest Cæsar and his virtue," it had been but a small support against the danger. 2. Because those things which proceed from virtue and industry are imitable, and lie open to others; whereas felicity is inimitable, and the prerogative of a singular person: whence, in general, natural things are preferred to artificial, because incapable of imitation; for whatever is imitable seems common, and in every one's power. 3. The things that proceed from felicity seem free gifts unpurchased by industry, but those acquired by virtue seem bought: whence Plutarch said elegantly of the successes of Timoleon (an extremely fortunate man), compared with those of his contemporaries Agesilaus and Epaminondas, "that they were like Homer's verses, and besides their other excellences, ran peculiarly smooth and natural." 4. Because what happens unexpectedly is more acceptable, and enters the mind with greater pleasure; but this effect cannot be had in things procured by our own industry.

XII.—What consists of many divisible parts is greater, and more one than what consists of fewer; for all things when viewed in their parts seem greater, whence also a plurality of parts shows bulky; but a plurality of parts has the stronger effect, if they lie in no certain order, for thus they resemble infinity and prevent comprehension

This sophism appears gross at first sight; for it is not plurality of parts alone, without majority, that makes the total greater; yet the imagination is often carried away, and the sense deceived with this color. Thus to the eye the road upon a naked plain may seem shorter, than where there are trees, buildings, or other marks, by which to distinguish and divide the distance. So when a moneyed man divides his chests and bags, he seems to himself richer than he was; and therefore a way to amplify anything is to break it into several parts, and examine them separately. And this makes the greater show, if done without order; for confusion shows things more numerous than they are.

But matters ranged and set in order appear more confined, and prove that nothing is omitted; while such as are represented in confusion not only appear more in number, but leave a suspicion of many more behind.

This color deceives—1. If the mind entertain too great an opinion of anything; for then the breaking of it will destroy that false notion, and show the thing really as it is, without amplification. Thus if a man be sick or in pain, the time seems longer without a clock than with one; for though the irksomeness of pain makes the time seem longer than it is, yet the measuring it corrects the error, and shows it shorter than that false opinion had conceived it. And so in a naked plain, contrary to what was just before observed, though the way to the eye may seem shorter when undivided, yet the frustration of that false expectation will afterward cause it to appear longer than the truth. Therefore, if a man design to encourage the false opinion of another as to the greatness of a thing, let him not divide and split it, but extol it in the general. This color deceives—2. If the matter be so far divided and dispersed as not all to appear at one view. So flowers growing in separate beds show more than if they grow in one bed, provided all the beds are in the same plot, so as to be viewed at once; otherwise they appear more numerous when brought nearer than when scattered wider; and hence landed estates that lie contiguous are usually accounted greater than they are; for if they lie in different counties, they could not so well fall within notice. 3. This sophism deceives through the excellence of unity above multitude; for all composition is an infallible sign of deficiency in particulars—

"Et quæ non prosunt singula, multa juvant." [32]

For if one would serve the turn, it were best; but defects and imperfections require to be pieced and helped out. So Martha, employed about many things, was told that one was sufficient.[33] And upon this foundation Æsop invented the

[32] Ovid, Remedia Amoris, 429.

[33] Luke x. 41.

fable how the fox bragged to the cat what a number of devices and stratagems he had to get from the hounds, when the cat said she had one, and that was to climb a tree, which in fact was better than all the shifts of reynard; whence the proverb, "Multa novit vulpes, sed felis unum magnum."[34] And the moral of the fable is this, that it is better to rely upon an able and trusty friend in difficulty than upon all the fetches and contrivances of one's own wit.

It were easy to collect a large number of this kind of sophisms—which we collected in our youth, but without their illustrations and solutions. These at last we have found time to digest, and think the performance of considerable service—whereto if their fallacies and detections were annexed, it might be a work of considerable service, as launching into primary philosophy and politics as well as rhetoric. And so much for the popular marks or colors of apparent good and evil, both simple and comparative.

A second collection wanting to the apparatus of rhetoric is that intimated by Cicero, when he directs a set of commonplaces, suited to both sides of the question, to be had in readiness: such are, "pro verbis legis," et "pro sententia legis." But we extend this precept further, so as to include not only judicial, but also deliberate and demonstrative forms. Our meaning is, that all the places of common use, whether for proof, confutation, persuasion, dissuasion, praise, or dispraise, should be ready studied, and either exaggerated or degraded with the utmost effort of genius, or, as it were, perverse resolution beyond all measure of truth. And the best way of forming this collection, both for conciseness and use, we judge to be that of contracting and winding up these places into certain acute and short sentences; as into so many clews, which may occasionally be wound off into larger discourses. And something of this kind we find done by Seneca;[35] but only in the way of suppositions or cases. The following examples will more fully illustrate our intention:

[34] The fox had many shifts, but the cat a capital one. [35] Controversia.

For BEAUTY[36] *Against*

The deformed endeavor, by malice, to keep themselves from contempt.

Deformed persons are commonly revenged of nature.

Virtue is internal beauty, and beauty external virtue

Beauty makes virtue shine, and vice blush.

Virtue, like a diamond, is best plain set.

As a good dress to a deformed person, so is beauty to a vicious man.

Those adorned with beauty, and those affected by it, are generally shallow alike.

For BOLDNESS *Against*

A bashful suitor shows the way to deny him.

Boldness in a politician is like action in an orator—the first, second, and third qualification.

Love the man who confesses his modesty; but hate him who accuses it.

A confidence in carriage soonest unites affections.

Give me a reserved countenance and open conversation.

Boldness is the verger to folly.

Impudence is fit for nothing but imposture.

Confidence is the fool's empress and the wise man's buffoon.

Boldness is a kind of dulness joined with a perverseness.

For CEREMONIES *Against*

A graceful deportment is the true ornament of virtue.

If we follow the vulgar in the use of words, why not in habit and gesture?

He who observes not decorum in smaller matters may be a great man, but is unwise at times.

Virtue and wisdom, without all respect and ceremony, are, like foreign languages, unintelligible to the vulgar.

He who knows not the sense of the people, neither by congruity nor observation, is senseless.

Ceremonies are the translation of virtue into our own language.

What can be more disagreeable than in common life to copy the stage?

Ingenuous behavior procures esteem, but affectation and cunning, hatred.

Better a painted face and curled hair, than a painted and curled behavior.

He is incapable of great matters, who breaks his mind with trifling observations.

Affectation is the glossy corruption of ingenuity.

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[36] In the original there is a different arrangement. We have followed the alphabetical order.

For CONSTANCY *Against*

Constancy is the foundation of virtue.

He is miserable who has no notion of what he shall be.

If human judgment cannot be constant to things, let it at least be true to itself.

Even vice is set off by constancy.

Inconstancy of fortune with inconstancy of mind makes a dark scene.

Fortune, like Proteus, is brought to herself by persisting.

Constancy, like a churlish porteress, turns away many useful informations.

It is just that constancy should endure crosses, for it commonly brings them.

The shortest folly is the best.

For CRUELTY *Against*

No virtue is so often delinquent as clemency.

Cruelty proceeding from revenge is justice; if from danger, prudence.

He who shows mercy to his enemy denies it to himself.

Phlebotomy is as necessary in the body politic as in the body natural.

He who delights in blood is either a wild beast or a fury.

To a good man, cruelty seems a mere tragical fiction.

For DELAY *Against*

Fortune sells many things to the hasty which she gives to the slow.

Hurrying to catch the beginnings of things is grasping at shadows.

When things hang wavering, mark them, and work when they incline.

Commit the beginning of actions to Argus, with his hundred eyes, the end to Briareus, with his hundred hands.

Opportunity offers the handle of the bottle first, then the belly.

Opportunity, like the Sibyl, diminishes the commodity but enhances the price.

Despatch is Pluto's helmet.

Things undertaken speedily are easily performed.

For DISSIMULATION *Against*

Dissimulation is a short wisdom.

We are not all to say, though we all intend, the same thing.

Nakedness, even in the mind, is uncomely.

Dissimulation is both a grace and a guard.

Dissimulation is the bulwark of counsels.

If we cannot think justly, at least let us speak as we think.

In shallow politicians, dissimulation goes for wisdom.

The dissembler loses a principal instrument of action, belief.

Dissimulation invites dissimulation.

The dissembler is a slave.

Some fall a prey to fair dealing.

The open dealer deceives as well as the dissembler; for many either do not understand him or not believe him.

Open dealing is a weakness of mind.

For	EMPIRE	*Against*
To enjoy happiness is a great blessing, but to confer it a greater.		It is a miserable state to have few things to desire and many to fear.
Kings are more like stars than men, for they have a powerful influence.		Princes, like the celestial bodies, have much veneration but no rest.
To resist God's vicegerents is to war against heaven.		Mortals are admitted to Jupiter's table only for sport.

For	ENVY	*Against*
It is natural to hate those who reproach us.		Envy has no holidays.
Envy in a state is like a wholesome severity.		Death alone reconciles envy to virtue.
		Envy puts virtue to the trial, as Juno did Hercules.

EVIDENCE AGAINST ARGUMENTS

For	*Against*
To rely upon arguments is the part of a pleader, not a judge.	If evidence were to prevail against arguments, a judge would need no sense but his hearing.
He who is swayed more by arguments than testimony, trusts more to wit than sense.	Arguments are an antidote against the poison of testimonies.
Arguments might be trusted, if men committed no absurdities.	Those proofs are safest believed which seldomest deceive.
Arguments against testimonies make the case appear strange, but not true.	

For	FACILITY	*Against*
Give me the man who complies to another's humor without flattery.		Facility is want of judgment.
The flexible man comes nearest to the nature of gold.		The good offices of easy natures seem debts, and their denials, injuries.
		He thanks only himself who prevails upon an easy man.
		All difficulties oppress a yielding nature, for he is engaged in all.
		Easy natures seldom come off with credit

For FLATTERY *Against*

Flattery proceeds from custom rather than ill design.

To convey instruction with praise is a form due to the great.

Flattery is the style of a slave.

Flattery is the varnish of vice.

Flattery is fowling with a bird-call.

The deformity of flattery is comedy, but the injury, tragedy.

To convey good counsel is a hard task.

For FORTITUDE *Against*

Nothing is terrible but fear itself.

Pleasure and virtue lose their nature where fear disquiets.

To view danger is looking out to avoid it.

Other virtues subdue vice, but fortitude even conquers fortune.

A strange virtue that, to desire to destroy, to secure destruction.

A goodly virtue truly, which even drunkenness can cause.

A prodigal of his own life threatens the lives of others.

Fortitude is a virtue of the iron age.

For FORTUNE *Against*

Public virtues procure praise; but private ones, fortune.

Fortune, like the milky way, is a cluster of small, twinkling, nameless virtues.

Fortune is to be honored and respected, though it were but for her daughters, Confidence and Authority.

The folly of one man is the fortune of another.

This may be commended in fortune, that if she makes no election, she gives no protection.

The great, to decline envy, worship fortune.

For FRIENDSHIP *Against*

Friendship does the same as fortitude, but more agreeably.

Friendship gives the relish to happiness.

The worst solitude is to want friendship.

It is just that the hollow-hearted should not find friendship.

To contract friendship is to procure encumbrance.

It is a weak spirit that divides fortune with another.

For HEALTH *Against*

The care of health subjects the mind to the body.

A healthy body is the tabernacle, but a sickly one the prison of the soul.

A sound constitution forwards busi-

Recovery from sickness is rejuvenescency.

Pretence of sickness is a good excuse for the healthy.

Health too strongly cements the soul and body.

ness, but a sickly one makes many holidays.

For HONORS *Against*

Honors are the suffrages, not of tyrants, but Divine Providence.

Honors make both virtue and vice conspicuous.

Honor is the touchstone of virtue.

The motion of virtue is rapid to its place, but calm in it; but the place of virtue is honor.

To seek honor is to lose liberty.

Honors give command where it is best not to will; and next, not to be able.

The steps of honor are hard to climb, slippery atop, and dangerous to go down.

Men in great place borrow others' opinions, to think themselves happy.

For JESTS *Against*

A jest is the orator's altar.

Humor in conversation preserves freedom.

It is highly politic to pass smoothly from jest to earnest, and *vice versâ*.

Witty conceits are vehicles to truths that could not be otherwise agreeably conveyed.

Hunters after deformities and comparisons are despicable creatures.

To divert important business with a jest is a base trick.

Judge of a jest when the laugh is over.

Wit commonly plays on the surface of things, for surface is the seat of a jest.

For INGRATITUDE *Against*

Ingratitude is but perceiving the cause of a benefit.

The desire of being grateful neither does justice to others nor leaves one's self at liberty.

A benefit of an uncertain value merits the less thanks.

The sin of ingratitude is not made penal here, but left to the furies.

The obligations for benefits exceed the obligation of duties; whence ingratitude is also unjust.

No public fortune can exclude private favor.

For INNOVATION *Against*

Every remedy is an innovation.

He who will not apply new remedies must expect new diseases.

Time is the greatest innovator: and why may we not imitate time?

Ancient precedents are unsuitable, and late ones corrupt and degenerate.

Let the ignorant square their actions by example.

New births are deformed things.

No author is accepted till time has authorized him.

All novelty is injury, for it defaces the present state of things.

Things authorized by custom, if not excellent, are yet comfortable and sort well together.

What innovator follows the example

[37] As happened in the persons of Charles V. and the Maréchal De Saxe.

As they who first derive honor to their family are commonly more worthy than those who succeed them, so innovations generally excel imitations.

An obstinate adherence to customs is as turbulent a thing as innovation.

Since things of their own course change for the worse, if they are not by prudence altered for the better, what end can there be of the ill?

The slaves of custom are the sport of time.

of time, which brings about new things so quietly as to be almost imperceptible?

Things that happen unexpected are less agreeable to those they benefit and more afflicting to those they injure.

JUSTICE

For

Power and policy are but the appendages of justice; for if justice could be otherwise executed, there were no need of them.

It is owing to justice that man to man is a god, not a wolf.

Though justice cannot extirpate vice, it keeps it under.

Against

If justice consist in doing to another what we would have done to ourselves, then mercy is justice.

If every one must receive his due, then surely mortals must receive pardon.

The common justice of a nation, like a philosopher at court, renders rulers awful.

KNOWLEDGE AND CONTEMPLATION

For

That pleasure only is according to nature, which never cloys.

The sweetest prospect is that below, into the errors of others.

It is best to have the orbits of the mind concentric with those of the universe.

All depraved affections are false valuations, but goodness and truth are ever the same.

Against

A contemplative life is but a specious laziness.

To think well is little better than to dream well.

Divine Providence regards the world, but man regards only his country.

A political man sows even his thoughts.

LAW

For

It is not expounding, but divining, to recede from the letter of the law.

To leave the letter of the law makes the judge a legislator.

Against

Generals are to be construed so as to explain particulars.

The worst tyranny is law upon the rack.

LEARNING

For

To write books upon minute particulars were to render experience almost useless.

Reading is conversing with the wise,

Against

Men in universities are taught to believe.

What art ever taught the seasonable use of art?

but acting is generally conversing with fools.

Sciences of little significance in themselves may sharpen the wit and marshal the thoughts.

To be wise by precept and wise by experience are contrary habits, the one sorts not with the other.

A vain use is made of art, lest it should otherwise be unemployed.

It is the way of scholars to show all they know and oppose further information.

For LIFE *Against*

It is absurd to love the accidents of life above life itself.

A long course is better than a short one, even for virtue.

Without a compass of life, we can neither learn, nor repent, nor perfect.

The philosophers, by their great preparation for death, have only rendered death more terrible.

Men fear death through ignorance, as children fear the dark.

There is no passion so weak but, if a little urged, will conquer the fear of death.

A man would wish to die, even through weariness of doing the same things over and over again.

For LOQUACITY *Against*

Silence argues a man to suspect either himself or others.

All restraints are irksome, but especially that of the tongue.

Silence is the virtue of fools.

Silence, like the night, is fit for treacheries.

Thoughts, like waters, are best in a running stream.

Silence is a kind of solitude.

He who is silent exposes himself to censure.

To speak little gives grace and authority to what is delivered.

Silence is like sleep, it refreshes wisdom.

Silence is the fermentation of the thoughts.

Silence is the style of wisdom and the candidate for truth.

For LOVE *Against*

Every man seeks, but the lover only finds, himself.

The mind is best regulated by the predominance of some powerful affection.

He who is wise will pursue some one desire; for he that affects not one thing above another, finds all flat and distasteful.

The stage is more beholden to love than civil life.

I like not such men as are wholly taken up with one thing.

Love is but a narrow contemplation.

Why should not one man rest in one individual ?

For MAGNANIMITY *Against*

When the mind proposes honorable ends, not only the virtues but the deities are ready to assist.

Virtues proceeding from habit or precept are vulgar, but those that proceed from the end, heroical.

Magnanimity is a poetical virtue.

For NATURE *Against*

Custom goes in arithmetical, but nature in geometrical progression.

As laws are to custom in states, so is nature to custom in particular persons.

Custom against nature is a kind of tyranny, but easily suppressed.

Men think according to nature, speak according to precept, but act according to custom.

Nature is a kind of schoolmaster; custom, a magistrate.

For NOBILITY *Against*

Where virtue is deeply implanted from the stock, there can be no vice.

Nobility is a laurel conferred by time.

If we reverence antiquity in dead monuments, we should do it much more in living ones.

If we despise nobility in families, what difference is there between men and brutes ?

Nobility shelters virtue from envy and recommends it to favor.

Nobility seldom springs from virtue, and virtue seldomer from nobility.

Nobles oftener plead their ancestors for pardon than promotion.

New rising men are so industrious as to make nobles seem like statues.

Nobles, like bad racers, look back too often in the course.

For POPULARITY *Against*

Uniformity commonly pleases wise men, yet it is a point of wisdom to humor the changeable nature of fools.

To honor the people is the way to be honored.

Men in place are usually awed not by one man but the multitude.

He who suits with fools may himself be suspected.

He who pleases the rabble is commonly turbulent.

No moderate counsels take with the vulgar.

To fawn on the people is the basest flattery.

For PRAISE *Against*

Praise is the reflected ray of virtue.

Praise is honor obtained by free voices.

Many states confer honors, but praise always proceeds from liberty.

The voice of the people hath something of divine, else how should so many become of one mind?

No wonder if the commonalty speak truer than the nobility, because they speak with less danger.

Fame makes a quick messenger but a rash judge.

What has a good man to do with the breath of the vulgar?

Fame, like a river, buoys up things light and swollen, but drowns those that are weighty.

Low virtues gain the praise of the vulgar, ordinary ones astonish them, but of the highest they have no feeling.

Praise is got by bravery more than merit, and given rather to the vain and empty than to the worthy and substantial.

For PREPARATION *Against*

He who attempts great matters with small means hopes for opportunity to keep him in heart.

Slender provision buys wit, but not fortune.

The first occasion is the best preparation.

Fortune is not to be fettered in the chains of preparation.

The interchange of preparation and action are politic, but the separation of them ostentatious and unsuccessful.

Great preparation is a prodigal both of time and business.

For PRIDE *Against*

Pride is inconsistent even with vice; and as poison expels poison, so are many vices expelled by pride.

An easy nature is subject to other men's vices, but a proud one only to its own.

Pride, if it rise from a contempt of others to a contempt of itself, at length becomes philosophy.

Pride is the ivy of virtue.

Other vices are only opposites to virtues, but pride is even contagious.

Pride wants the best condition of vice, concealment.

A proud man, while he despises others, neglects himself.

For READINESS *Against*

That is unseasonable wisdom which is not ready.

He who errs suddenly, suddenly reforms his error.

To be wise upon deliberation, and

That knowledge is not deep fetched which lies ready at hand.

Wisdom is like a garment, lightest when readiest.

They whose counsels are not

not upon present occasion, is no great matter.

ripened by deliberation have not their prudence ripened by age.

What is suddenly invented suddenly vanishes.

For REVENGE *Against*

Private revenge is a kind of wild justice.

He who returns injury for injury violates the law, not the person.

The fear of private revenge is useful, for laws are often asleep.

He who does the wrong is the aggressor, but he who returns it the protractor.

The more prone men are to revenge, the more it should be weeded out.

A revengeful man may be slow in time, though not in will.

For RICHES *Against*

They despise riches who despair of them.

Envy at riches has made virtue a goddess.

While philosophers dispute whether all things should be referred to virtue or pleasure, let us be collecting the instruments of both.

Riches turn virtue into a common good.

The command of other advantages are particular, but that of riches universal.

Great riches are attended either with care, trouble, or fame, but no use.

What an imaginary value is set upon stones and other curiosities, that riches may seem to be of some service.

Many who imagine all things may be bought by their riches, forget they have sold themselves.

Riches are the baggage of virtue, necessary though cumbersome.

Riches are a good servant but a bad master.

For SUPERSTITION *Against*

They who err out of zeal, though they are not to be approved, should yet be pitied.

Mediocrity belongs to morality, extremes to divinity.

A superstitious man is a religious formalist.

I should sooner believe all the fables and absurdities of any religion than that the universal frame is without a deity.

As an ape appears the more deformed for his resemblance to man, so the similitude of superstition to religion makes it the more odious.

What affectation is in civil matters such is superstition in divine.[38]

It were better to have no belief of a God than such a one as dishonors him.

It was not the school of Epicurus, but the Stoics, that disturbed the states of old.

The real atheists are hypocrites, who deal continually in holy things without feeling.

[38] Superstition is anything but affectation. They are hypocrites who dissemble: those who believe too much are generally overearnest.—*Ed.*

For SUSPICION *Against*

Distrust is the sinew of prudence, and suspicion a strengthener of the understanding.

That sincerity is justly suspected which suspicion weakens.

Suspicion breaks a frail integrity, but confirms a strong one.

Suspicion breaks the bonds of trust.

To be overrun with suspicion is a kind of political madness.

For TACITURNITY *Against*

Nothing is concealed from a silent man, for all is safely deposited with him.

He who easily talks what he knows, will also talk what he knows not.

Mysteries are due to secrets.

From a silent man all things are concealed, because he returns nothing but silence.

Change of customs keeps men secret.

Secrecy is the virtue of a confessor.

A close man is like a man unknown.

For TEMPERANCE *Against*

To abstain and sustain are nearly the same virtue.

Uniformity, concords, and the measure of motions, are things celestial and the characters of eternity.

Temperance, like wholesome cold, collects and strengthens the force of the mind.

When the senses are too exquisite and wandering, they want narcotics, so likewise do wandering affections.

I like not bare negative virtues; they argue innocence, not merit.

The mind languishes that is not sometimes spirited up by excess.

I like the virtues which produce the vivacity of action, not the dulness of passion.

The sayings, "Not to use, that you may not desire"; "Not to desire, that you may not fear," etc., proceed from pusillanimous and distrustful natures.

For VAINGLORY *Against*

He who seeks his own praise at the same time seeks the advantage of others.

He who is so strait-laced as to regard nothing that belongs to others, will perhaps account public affairs impertinent.

Such dispositions as have a mixture of levity, more easily undertake a public charge.

The vainglorious are always facetious, false, fickle, and upon the extreme.

Thraso is Gnatho's prey.

It is shameful in a lover to court the maid instead of the mistress, but praise is only virtue's handmaid.

For UNCHASTITY *Against*

It is jealousy that makes chastity a virtue.

Incontinence is one of Circe's worst transformations.

He must be a melancholy mortal who thinks Venus a grave lady.

Why is a part of regimen, pretended cleanness, and the daughter of pride, placed among the virtues?

In amours, as in wild fowl, there is property; but the right is transferred with possession.

The unchaste liver has no reverence for himself, which is slackening the bridle of vice.

They who, with Paris, make beauty their wish, lose, as he did, wisdom and power.

Alexander fell upon no popular truth when he said that sleep and lust were the earnest of death.

For WATCHFULNESS *Against*

More dangers deceive by fraud than force.

It is easier to prevent a danger than to watch its approach.

Danger is no longer light if it once seem light.

He bids danger advance, who buckles against it.

Even the remedies of dangers are dangerous.

It is better to use a few approved remedies than to venture upon many unexperienced particulars.

For WIFE AND CHILDREN *Against*

Charity to the commonwealth begins with private families.

Wife and children are a kind of discipline, but unmarried men are morose and cruel.

A single life and a childless state fit men for nothing but flight.

He sacrifices to death who begets no children.

The happy in other respects are commonly unfortunate in their children, lest the human state should too nearly approach the divine.

He who hath wife and children hath given hostages to fortune.

Generation and issue are human acts, but creation and its works are divine.

Issue is the eternity of brutes; but fame, merit, and institutions the eternity of men.

Private regards generally prevail over public.

Some affect the fortune of Priam, in surviving his family.

For YOUTH *Against*

The first thoughts and counsels of youth have somewhat divine.

Old men are wise for themselves, but less for others and the public good.

If it were visible, old age deforms the mind more than the body.

Old men fear all things but the gods.

Youth is the field of repentance.

Youth naturally despises the authority of age, that every one may grow wise at his peril.

The counsels whereat time did not assist are not ratified by him.

Old men commute Venus for the graces.[39]

[39] Understand propriety and decorum.

The examples of antithets here laid down may not, perhaps, deserve the place assigned them; but as they were collected in my youth, and are really seeds, not flowers, I was unwilling they should be lost. In this they plainly show a juvenile warmth, that they abound in the moral and demonstrative kind, but touch sparingly upon the deliberative and judicial.

A third collection wanting to the apparatus of rhetoric, is what we call lesser forms. And these are a kind of portals, postern-doors, outer rooms, back-rooms, and passages of speech, which may serve indifferently for all subjects; such as prefaces, conclusions, digressions, transitions, etc. For as in building, a good distribution of the frontispiece, staircases, doors, windows, entries, passages, and the like, is not only agreeable but useful; so in speeches, if the accessories or under-parts be decently and skilfully contrived and placed, they are of great ornament and service to the whole structure of the discourse. Of these forms, we will just propose one example or two; for though they are matters of no small use, yet because here we add nothing of our own, and only take naked forms from Demosthenes, Cicero, or other select authors, they may seem of too trivial a nature to spend time therein.

EXAMPLES OF LESSER FORMS

A CONCLUSION IN THE DELIBERATIVE

So the past fault may be at once amended, and future inconvenience prevented.

COROLLARY OF AN EXACT DIVISION

That all may see I would conceal nothing by silence, nor cloud anything by words.

A TRANSITION, WITH A CAVEAT

But let us leave the subject for the present, still reserving to ourselves the liberty of a retrospection.

A PREPOSSESSION AGAINST AN INVETERATE OPINION

I will let you understand to the full what sprung from the thing itself, what error has tacked to it, and what envy has raised upon it.

And these few examples may serve to show our meaning as to the lesser forms of speech.[40]

CHAPTER IV

Two General Appendices to Tradition, viz., the Arts of Teaching and Criticism

THERE remain two general appendages to the doctrine of delivery; the one relating to criticism, the other to school-learning. For as the principal part of traditive prudence turns upon the writing; so its relative turns upon the reading of books. Now reading is either regulated by the assistance of a master, or left to every one's private industry; but both depend upon criticism and school-learning.

Criticism regards, first, the exact correcting and publishing of approved authors; whereby the honor of such authors is preserved, and the necessary assistance afforded to the reader. Yet the misapplied labors and industry of some have in this respect proved highly prejudicial to learning; for many critics have a way, when they fall upon anything

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[40] Though the ancients may seem to have perfected rhetoric, yet the moderns have given it new light. Gerhord Vossius bestowed incredible pains upon this art, as appears by his book "De Natura et Constitutione Rhetoricæ"; and still more by his "Institutiones Oratoriæ." See also Wolfgang; Schoensleder's "Apparatus Eloquentiæ"; "Tesmari Exercitationes Rhetoricæ," etc. Several French authors have likewise cultivated this subject; particularly Rapin, in his "Réflexions sur l'Eloquence"; Bohour, in his "Manière de bien Penser dans les Ouvrages de l'Esprit" and his "Pensées Ingénieuses"; Father Lamy, in his "Art de Parler." See also M. Cassander's French translation of Aristotle's Rhetorics; the anonymous pieces, entitled, "L'Art de Penser," and "L'Art de Persuader"; Le Clerc's "Historie Rhetoricæ," in his "Ars Critica"; and "Stollius de Arte Rhetoricæ," in his "Introductio in Historiam Literariam."—*Shaw.*

they do not understand, of immediately supposing a fault in the copy. Thus, in that passage of Tacitus, where a certain colony pleads a right of protection in the Senate, Tacitus tells us they were not favorably heard; so that the ambassadors distrusting their cause, endeavored to procure the favor of Titus Vinius by a present, and succeeded; upon which Tacitus has these words: "Tum dignitas et antiquitas coloniæ valuit": "Then the honor and antiquity of the colony had weight," in allusion to the sum received.[1] But a considerable critic here expunges "tum," and substitutes "tantùm," which quite corrupts the sense. And from this ill practice of the critics, it happens that the most corrected copies are often the least correct. And to say the truth, unless a critic is well acquainted with the sciences treated in the books he publishes, his diligence will be attended with danger.

A second thing belonging to criticism is the explanation and illustration of authors, comments, notes, collections, etc. But here an ill custom has prevailed among the critics of skipping over the obscure passages, and expatiating upon such as are sufficiently clear, as if their design were not so much to illustrate their author, as to take all occasions of showing their own learning and reading. It were therefore to be wished, that every original writer who treats an obscure or noble subject, would add his own explanations to his own work, so as to keep the text continued and unbroken by digressions or illustrations, and thus prevent any wrong interpretation by the notes of others.

Thirdly, there belongs to criticism the thing from whence its name is derived; viz., a certain concise judgment or censure of the authors published, and a comparison of them with other writers who have treated the same subject. Whence the student may be directed in the choice of his books, and come the better prepared to their perusal; and this seems to be the ultimate office of the critic, and has

[1] Hist. b. i. c. 66.

indeed been honored by some greater men in our age than critics are usually thought.

For the doctrine of school-learning, it were the shortest way to refer it to the Jesuits, who, in point of usefulness, have herein excelled; yet we will lay down a few admonitions about it. We highly approve the education of youth in colleges, and not wholly in private houses or schools.[2] For in colleges, there is not only a greater emulation of the youth among their equals, but the teachers have a venerable aspect and gravity, which greatly conduces toward insinuating a modest behavior, and the forming of tender minds from the first, according to such examples; and besides these, there are many other advantages of a collegiate education. But for the order and manner of discipline, it is of capital use to avoid too concise methods and too hasty an opinion of learning, which give a pertness to the mind, and rather make a show of improvement than procure it. But excursions of genius are to be somewhat favored; so that if a scholar perform his usual exercises, he may be suffered to steal time for other things whereto he is more inclined. It must also be carefully noted, though it has, perhaps, hitherto escaped observation, that there are two correspondent ways of inuring, exercising, and preparing the genius; the one beginning with the easier, leads gradually on to more difficult things; and the other, commanding and imposing such as are the harder at first; so that when these are obtained, the easier may be more agreeably despatched. For it is one method to begin swimming with bladders, and another to begin dancing with loaded shoes. Nor is it easy to see how much a prudent intermixture of these two ways contributes to improve the faculties both of body and mind. Again, the suiting of studies to the genius is of singular use; which masters should duly attend to, that the parent may thence consider what kind of life the child is fittest for. And further, it must be carefully observed, not only

[2] See Osborn's Advice to a Son.

that every one makes much greater progress in those things whereto he is naturally inclined, but also, that there are certain remedies in a proper choice of studies for particular indispositions of mind. For example, inattention and a volatility of genius may be remedied by mathematics, wherein, if the mind wander ever so little, the whole demonstration must be begun anew. Exercises, also, are of great efficacy in teaching, but few have observed that these should not only be prudently appointed, but prudently changed. For, as Cicero well remarks, "faults as well as faculties are generally exercised in exercises"; whence a bad habit is sometimes acquired and insinuated together with a good one. It is therefore safer that exercises should be intermitted, and now and then repeated, than always continued and followed. These things, indeed, may at first sight appear light and trivial, yet they are highly effectual and advantageous. For as the great increase of the Roman empire has been justly attributed to the virtue and prudence of those six rulers who had, as it were, the tuition of it in its youth, so proper discipline, in tender years, has such a power, though latent and unobserved, as neither time nor future labor can any way subdue in our riper age. It also deserves to be remarked, that even ordinary talents in great men, used on great occasions, may sometimes produce remarkable effects. And of this we will give an eminent instance, the rather because the Jesuits judiciously retain the discipline among them. And though the thing itself be disreputable in the profession of it, yet it is excellent as a discipline; we mean the action of the theatre, which strengthens the memory, regulates the tone of the voice and the efficacy of pronunciation; gracefully composes the countenance and the gesture; procures a becoming degree of assurance; and lastly, accustoms youth to the eye of men. The example we borrow from Tacitus, of one Vibulenus, once a player, but afterward a soldier in the Pannonian army. This fellow, upon the death of Augustus, raised a mutiny; so that Blesus, the lieutenant, committed some

of the mutineers; but the soldiers broke open the prison and released them. Upon which, Vibulenus thus harangued the army: "You," says he, "have restored light and life to these poor innocents; but who gives back life to my brother, or my brother to me? He was sent to you from the German army for a common good, and that man murdered him last night, by the hands of his gladiators, whom he keeps about him to murder the soldiers. Answer, Blesus, where hast thou thrown his corpse? Even enemies refuse not the right of burial. When I shall, with tears and embraces, have performed my duty to him, command me also to death; but let our fellow-soldiers bury us, who are murdered only for our love to the legions."[3] With which words, he raised such a storm of consternation and revenge in the army, that unless the thing had presently appeared to be all a fiction, and that the fellow never had a brother, the soldiers might have murdered their leader; but he acted the whole as a part upon the stage. And thus much for the logical sciences.

We now come to that portion of our treatise which we have allotted to rational knowledge. Let no one, however, think that we hold the received division of the sciences of small account, because we have wandered out of the beaten paths. In so digressing we have been influenced by a twofold necessity—First, to unite two methods, which both in their end and nature are altogether different, viz., the ranging in the same class those things which are naturally related to each other, and to throw into one heap all those things which are likely to be called immediately into use. Thus, as a secretary of a prince or of some civil department ranges his papers according to their distinct heads—treaties, instructions, foreign and domestic letters—each occupying a separate corner of his study, and yet does not fail to collect in some particular cabinet those papers he is likely to use together, so in this general cabinet of knowledge we

[3] Annal. i. 22.

have selected our divisions according to the nature of things themselves; but if any particular science required to be treated at length, we have followed those divisions which are most conformable to use and practice. The second necessity arose from supplying the addenda to the sciences, and reducing them to an entire body, which completely changed the old boundaries. For, say that the existing arts are fifteen in number, and that the deficiencies increase the number to twenty, as the parts of fifteen are not the parts of twenty, two, four, and three being prime numbers in each, it is plain that a new division was forced upon us.

SEVENTH BOOK

CHAPTER I

Ethics divided into the Doctrine of Models and the Georgics (Culture) of the Mind. Division of Models into the Absolute and Comparative Good. Absolute Good divided into Personal and National

WE NEXT, excellent King, proceed to ethics, which has the human will for its subject. Reason governs the will, but apparent good seduces it: its motives are the affections, and its ministers the organs and voluntary motions. It is of this doctrine that Solomon says, "Keep thy heart with all diligence,[1] for out of it are the actions of life." The writers upon this science appear like writing-masters, who lay before their scholars a number of beautiful copies, but give them no directions how to guide their pen or shape their letters; for so the writers upon ethics have given us shining drafts, descriptions, and exact images of goodness, virtue, duties, happiness, etc., as the true objects and scope of the human will and desire; but for obtaining these excellent and well-described ends,

[1] Prov. iv. 23.

or by what means the mind may be broke and fashioned for obtaining them, they either touch this subject not at all or slightly.[2] We may dispute as much as we please, that moral virtues are in the human mind by habit, not by nature; that generous spirits are led by reason, but the herd by reward and punishment; that the mind must be set straight, like a crooked stick, by bending it the contrary way, etc.[3] But nothing of this kind of glance-and-touch can in any way supply the want of the thing we are now in quest of.

The cause of this neglect I take to be that latent rock whereon so many of the sciences have split, viz., the aversion that writers have to treat of trite and vulgar matters, which are neither subtle enough for dispute nor eminent enough for ornament. It is not easy to see how great a misfortune has proceeded hence—that men, through natural pride and vainglory, should choose such subjects and methods of treating them, as may rather show their own capacities, than be of use to the reader. Seneca says excellently, "Eloquence is hurtful to those it inspires with a desire of itself, and not of things";[4] for writings should make men in love with the subject, and not with the writer. They, therefore, take the just course who can say of their counsels as Demosthenes did—"If you put these things in execution, you shall not only praise the orator for the present, but yourselves also soon after, when your affairs are in a better posture."[5] As for myself, excellent King, to speak the truth, I have frequently neglected the glory of my order, name, and learning, both in the works I now publish and those which I have already designed to execute, in following out my direct purpose of advancing the happiness of mankind; so that I may fairly say, though marked

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[2] For the History of Morality, consult Scheurlius' "Bibliographia Moralis," ed. 1686; Placcius' "Epitome Bibliothecæ Moralis"; "Paschius de variis Moralia tradendi Modis Formisque," 1707; Barbeyrac's Preface to his French translation of Puffendorf "De Jure Naturæ et Gentium"; and "Stollii Introductio in Historiam Literariam," pp. 692–752.—*Ed.*

[3] Arist. Ethics, ii.

[4] Epist. 100, toward the end.

[5] Olynthias 25, toward the end.

out by nature to be the architect of philosophy and the sciences, I have submitted to become a common workman and laborer, there being many mean things necessary to the erection of the structure, which others, out of a natural disdain, refused to attend to. But in ethics the philosophers have culled out a certain splendid mass of matter, wherein they might principally show their force of genius or power of eloquence; but for other things that chiefly conduce to practice, as they could not be so gracefully set off, they have entirely neglected them. Yet so many eminent men, surely, ought not to have despaired of a like success with Virgil, who procured as much glory for eloquence, ingenuity, and learning, by explaining the homely observations of agriculture as in relating the heroic acts of Æneas—

> "Nec sum animi dubius, verbis ea vincere magnum
> Quam sit, et angustis hunc addere rebus honorem." [6]

And certainly, if men were bent, not upon writing at leisure what may be read at leisure, but really to cultivate and improve active life, the georgics of the mind ought to be as highly valued as those heroical portraits of virtue, goodness, and happiness wherein so much pains have been taken.

We divide ethics into two principal doctrines—the one of the model or image of good, the other of the regulation and culture of the mind, which I commonly express by the word georgics. The first describes the nature of good, and the other prescribes rules for conforming the mind to it. The doctrine of the image of good, in describing the nature of good, considers it either as simple or compounded, and either as to the kinds or degrees thereof. In the latter of these the Christian faith has at length abolished those infinite disputes and speculations as to the supreme degree of good, called happiness, blessedness, or the "summum bonum," which was a kind of heathen theology. For, as Aristotle said, "Youth might be happy, though only in hope";[7] so, according to the direction of faith, we must

[6] Georg. iii. 289.

[7] Nic. Ethics, i. 10; Rhet. ii. 12, 8.

put ourselves in the state of minors, and think of no other felicity, but that founded in hope. Being, therefore, thus delivered from this ostentatious heaven of the heathens, who, following Seneca, "Vere magnum habere fragilitatem hominis, securitatem Dei,"[8] exaggerated the perfectibility of man's nature—we may, with less offence to truth and sobriety, receive much of what they deliver about the image of good. As for the nature of positive and simple good, they have certainly drawn it beautifully and according to the life, in several pieces exactly representing the form of virtue and duty—their order, kinds, relations, parts, subjects, provinces, actions, and dispensations. And all this they have recommended and insinuated to the mind with great vivacity and subtilty of argument, as well as sweetness of persuasion, at the same time faithfully guarding, as much as was possible by words, against depraved and popular errors and insults. And in deducing the nature of comparative good they have not been wanting, but appointed three orders thereof—they have compared contemplative and active life together;[9] distinguished between virtue with reluctance, and virtue secured and confirmed; represented the conflict between honor and advantage; balanced the virtues, to show which overweighed, and the like—so that this part of the image of good is already nobly executed; and herein the ancients have shown wonderful abilities. Yet the pious and strenuous diligence of the divines, exercised in weighing and determining studies, moral virtues, cases of conscience, and fixing the bounds of sin, have greatly exceeded them. But if the philosophers, before they descended to the popular and received notions of virtue and vice, pain and pleasure, etc., had dwelt longer upon discovering the roots and fibres of good and evil, they would, doubtless, have thus gained great light to their subsequent inquiries, especially if they had consulted the nature of things, as well as moral axioms,

[8] Epist. 53, § 12.

[9] See Arist. Eth. Nic. i. 3, sq.

they would have shortened their doctrines and laid them deeper. But as they have entirely omitted this or confusedly touched it, we will here briefly touch it over again, and endeavor to open and cleanse the springs of morality, before we come to the georgics of the mind, which we set down as deficient.

All things are indued with an appetite to two kinds of good—the one as the thing is a whole in itself, the other as it is a part of some greater whole; and this latter is more worthy and more powerful than the other, as it tends to the conservation of a more ample form. The first may be called individual or self good, and the latter, good of communion. Iron by a particular property moves to the loadstone, but if the iron be heavy, it drops its affection to the loadstone and tends to the earth, which is the proper region of such ponderous bodies. Again, though dense and heavy bodies tend to the earth, yet rather than nature will suffer a separation in the continuity of things, and leave a vacuum, as they speak, these heavy bodies will be carried upward, and forego their affection to the earth, to perform their office to the world. And thus it generally happens, that the conservation of the more general form regulates the lesser appetites. But this prerogative of the good of communion is more particularly impressed upon man, if he be not degenerate, according to that remarkable saying of Pompey, who, being governor of the city purveyance at a time of famine in Rome, and entreated by his friends not to venture to sea while a violent storm was impending, answered, "My going is necessary, but not my life";[10] so that the desire of life, which is greatest in the individual, did not with him outweigh his affection and fidelity to the state. But no philosophy, sect, religion, law, or discipline, in any age, has so highly exalted the good of communion, and so far depressed the good of individuals, as the Christian faith; whence it may clearly appear that one and the same God gave those

[10] Plut. Life Pomp.

laws of nature to the creatures and the Christian law to men. And hence we read that some of the elect and holy men, in an esctasy of charity and impatient desire of the good of communion, rather wished their names blotted out of the book of life than that their brethren should miss of salvation."[11]

This being once laid down and firmly established, will put an end to some of the soberest controversies in moral philosophy. And first, it determines that question about the preference of a contemplative to an active life, against the opinion of Aristotle; as all the reasons he produces for a contemplative life regard only private good, and the pleasure or dignity of an individual person, in which respects the contemplative life is doubtless best, and like the comparison made by Pythagoras,[12] to assert the honor and reputation of philosophy, when being asked by Hiero who he was, he answered, "I am a looker-on; for as at the Olympic games some come to try for the prize, others to sell, others to meet their friends and be merry, but others again come merely as spectators, I am one of the latter." But men ought to know that in the theatre of human life it is only for God and angels to be spectators. Nor could any doubt about this matter have arisen in the Church, if a monastic life had been merely contemplative and unexercised in ecclesiastical duties—as continual prayer, the sacrifice of vows, oblations to God, and the writing of theological books, for propagating the Divine law—as Moses retired in the solitude of the mount, and Enoch, the seventh from Adam, who, though the Scripture says he walked with God, intimating he was the first founder of the spiritual life, yet enriched the Church with a book of prophecies cited by St. Jude. But for a mere contemplative life, which terminates in itself, and sends out no rays either of heat or light into human society, theology knows it not.

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[11] St. Paul, Rom. ix.

[12] Iamblicus' life, in the Tus. Quæst. v. 3. Cicero substitutes Leontius, prince of the Phœnicians, for Hieron.

It also determines the question that has been so vehemently controverted between the schools of Zeno and Socrates on the one side, who placed felicity in virtue, simple or adorned, and many other sects and schools on the other—as particularly the schools of the Cyrenaics and Epicureans, who placed felicity in pleasure;[13] thus making virtue a mere handmaid, without which pleasure could not be well served. Of the same side is also that other school of Epicurus, as on the reformed establishment, which declared felicity to be nothing but tranquillity and serenity of mind. With these also joined the exploded school of Pyrrho and Herillus, who placed felicity in an absolute exemption from scruples, and the allowing no fixed and constant nature of good and evil, but accounting all actions virtuous or vicious, as they proceed from the mind by a pure and undisturbed motion, or with aversion and reluctance.[14] But it is plain that all things of this kind relate to private tranquillity and complacency of mind, and by no means to the good of communion.

Again, upon the foundation above laid we may confute the philosophy of Epictetus, which rests upon supposing felicity placed in things within our power, lest we should otherwise be exposed to fortune and contingence,[15] as if it were not much happier to fail of success in just and honorable designs, when that failure makes for the public good, than to secure an uninterrupted enjoyment of those things which make only for our private fortune. Thus Gonsalvo at the head of his army, pointing to Naples, nobly protested he had much rather, by advancing a step, meet certain death, than by retiring a step prolong his life. And to this agrees the wise king, who pronounces "a good conscience to be a continual feast";[16] thereby signifying that the con-

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[13] For an account of these sects, consult Ritter's "Geschichte der Philosophie alter Zeit."

[14] This opinion has been revived in the Anabaptist heresy, who measure everything by the humors and instincts of the spirit and constancy or vacillation of faith.—*Ed.*

[15] Enchir. Arrian. i.

[16] Prov. xv. 15.

sciousness of good intentions, however unsuccessful, affords a joy more real, pure, and agreeable to nature, than all the other means that can be furnished, either for obtaining one's desires or quieting the mind.

It likewise censures that abuse which prevailed about the time of Epictetus, when philosophy was turned into a certain art or profession of life, as if its design were not to compose and quiet troubles, but to avoid and remove the causes and occasions thereof, whence a particular regimen was to be entered into for obtaining this end, by introducing such a kind of health into the mind as was that of Herodicus in the body, mentioned by Aristotle,[17] while he did nothing all his life long but take care of his health, and therefore abstained from numberless things, which almost deprived him of the use of his body; whereas, if men were determined to perform the duties of society, that kind of bodily health is most desirable which is able to suffer and support all sorts of attacks and alterations. In the same manner, that mind is truly sound and strong which is able to break through numerous and great temptations and disorders; whence Diogenes seems to have justly commended the habit which did not warily abstain, but courageously sustain—[18] which could check the sallies of the soul on the steepest precipice, and make it, like a well-broken horse, stop and turn at the shortest warning.

Lastly, it reproves that delicacy and unsociable temper observed in some of the most ancient philosophers of great repute, who too effeminately withdrew from civil affairs, in order to prevent indignities and trouble to themselves, and live the more free and unspotted in their own opinions; as to which point the resolution of a true moralist should be such as Gonsalvo required of a soldier—viz., "Not to weave his honor so fine, as for everything to catch and rend it."

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[17] Rhet. i. 5, 10.

[18] ἀνέχου ἀπέχου. Summa Stoic. Philos.

CHAPTER II

Division of Individual Good into Active and Passive. That of Passive Good into Conservative and Perfective. Good of the Commonwealth divided into General and Respective

WE DIVIDE individual or self good into active and passive. This difference of good is also found impressed upon the nature of all things, but principally shows itself in two appetites of the creatures; viz.— 1. That of self-preservation and defence; and, 2. That of multiplying and propagating. The latter, which is active, seems stronger and more worthy than the former, which is passive; for throughout the universe the celestial nature is the principal agent, and the terrestrial the patient; and in the pleasures of animals that of generation is greater than that of feeding; and the Scripture says, "It is more blessed to give than to receive."[1] And even in common life, no man is so soft and effeminate, as not to prefer the performing and perfecting of anything he had set his mind upon before sensual pleasures. The pre-eminence of active good is also highly exalted from the consideration of the state of mankind, which is mortal and subject to fortune; for if perpetuity and certainty could be had in human pleasures, this would greatly enhance them; but as the case now stands, when we count it a happiness to die late, when we cannot boast of to-morrow, when we know not what a day may bring forth, no wonder if we earnestly endeavor after such things as elude the injuries of time: and these can be no other than our works. Accordingly it is said, "Their works follow them."[2]

Another considerable pre-eminence of active good is given it, and supported by that inseparable affection of

[1] Acts Ap. xx. 35.

[2] Apoc. xiv. 13.

human nature—the love of novelty or variety. But this affection is greatly limited in the pleasures of the senses, which make the greatest part of passive good. To consider how often the same things come over in life—as meals, sleep, and diversion—it might make not only a resolute, a wretched, or a wise, but even a delicate person wish to die.[3] But in actions, enterprises, and desires, there is a remarkable variety, which we perceive with great pleasure, while we begin, advance, rest, go back to recruit, approach, obtain, etc.: whence it is truly said, "That life without pursuit is a vague and languid thing";[4] and this holds true both of the wise and unwise indifferently. So Solomon says, "Even a brain-sick man seeks to satisfy his desire, and meddles in everything."[5] And thus the most potent princes, who have all things at command, yet sometimes choose to pursue low and empty desires, which they prefer to the greatest affluence of sensual pleasures: thus Nero delighted in the harp, Commodus in fencing, Antonius in racing, etc. So much more pleasing is it to be active than in possession.

It must, however, be well observed, that active, individual good differs entirely from the good of communion, notwithstanding they may sometimes coincide; for although this individual active good often produces works of beneficence, which is a virtue of communion, yet herein they differ, that these works are performed by most men, not with a design to assist or benefit others, but wholly for their own gratification or honor, as plainly appears when active good falls upon anything contrary to the good of communion; for that gigantic passion wherewith the great disturbers[6] of the world are carried away, as in the case of

[3] Seneca. [4] Seneca, Epist. xxiv. § 23–25. [5] Prov. xxi. 25.

[6] So Barrow, "Sermon iii. on Redemption." There are some persons of that wicked and gigantic disposition, contracted by evil practice, that should one offer to instruct them in truth or move them to piety, would exclaim with Polyphemus—

Νήπιός εἰς, ὦ ξεῖν', ἢ τηλόθεν εἰλήλουθας,
Ὅς με θεοὺς κέλεαι ἢ δειδιμεν, ἢ ἀλέασθαι.—Odyss. ix. 273.

Sylla and others, who would render all their friends happy and all their enemies miserable, and endeavor to make the world carry their image, which is really warring against heaven—this passion, I say, aspires to an active individual good, at least in appearance, though it be infinitely different from the good of communion.

We divide passive good into conservative and perfective; for everything has three kinds of appetite with regard to its own individual good—the first to preserve itself, the second to perfect itself, and the third to multiply and diffuse itself. The last relates to active good, of which we have spoken already; and of the other two the perfective is the most excellent; for it is a less matter to preserve a thing in its state, and a greater to exalt its nature. But throughout the universe are found some nobler natures, to the dignity and excellence whereof inferior ones aspire, as to their origins—whence the poet said well of mankind, that "they have an ethereal vigor and a celestial origin":

"Igneus est ollis vigor et cœlestis origo";[7]

for the perfection of the human form consists in approaching the Divine or angelic nature. The corrupt and preposterous imitation of this perfective good is the pest of human life, and the storm that overturns and sweeps away all things, while men, instead of a true and essential exaltation, fly with blind ambition only to a local one; for as men in sickness toss and roll from place to place, as if by change of situation they could get away from themselves, or fly from the disease, so in ambition, men hurried away with a false imagination of exalting their own nature, obtain no more than change of place or eminence of post.

Conservative good is the receiving and enjoying things agreeable to our nature; and this good, though it be the most simple and natural, yet of all others it seems the lowest and most effeminate. It is also attended with a difference, about which the judgment of mankind has been

[7] See Virgil, Æneid, vi. 730.

partly unsettled and the inquiry partly neglected; for the dignity and recommendation of the good of fruition or pleasure, as it is commonly called, consists either in the reality or strength thereof—the one being procured by uniformity, and the other by variety. The one has a less mixture of evil, the other a stronger and more lively impression of good: which of these is the best, is the question; but whether human nature be not capable of both at once, has not been examined.

As for the question, it began to be debated between Socrates and a Sophist. Socrates asserted that felicity lay in a constant peace and tranquillity of mind, but the Sophist placed it in great appetite and great fruition. From reasoning they fell to railing, when the Sophist said, the felicity of Socrates was the felicity of a stock or a stone; Socrates, on the other hand, said, the felicity of the Sophist was the felicity of one who is always itching and always scratching. And both opinions have their supporters;[8] for the school even of Epicurus, which allowed that virtue greatly conduced to felicity, is on the side of Socrates; and if this be the case, certainly virtue is more useful in appeasing disorders than in obtaining desires. The Sophist's opinion is somewhat favored by the assertion above mentioned, viz., that perfective good is superior to conservative good, because every obtaining of a desire seems gradually to perfect nature, which though not strictly true, yet a circular motion has some appearance of a progressive one.

As for the other point, whether human nature is not at the same time capable both of tranquillity and fruition, a just determination of it will render the former question unnecessary. And do we not often see the minds of men so framed and disposed, as to be greatly affected with present pleasures, and yet quietly suffer the loss of them?—Whence that philosophical progression, "Use not, that you may not wish; wish not, that you may not fear," seems an indication of a weak, diffident, and timorous mind. And, indeed, most

[8] Plato, Gorgias, i. 492.

doctrines of the philosophers appear to be too distrustful, and to take more care of mankind than the nature of the thing requires. Thus they increase the fears of death by the remedies they bring against it; for while they make the life of man little more than a preparation and discipline for death, it is impossible but the enemy must appear terrible, when there is no end of the defence to be made against him. The poet did better for a heathen, who placed the end of life among the privileges of nature—

> "Qui spatium vitæ extremum inter munera ponat Naturæ." [9]

Thus the philosophers, in all cases, endeavor to render the mind too uniform and harmonical, without inuring it to extreme and contrary motions; and the reason seems to be, that they give themselves up to a private life, free from disquiet and subjection to others; whereas men should rather imitate the prudence of a lapidary, who, finding a speck or a cloud in a diamond, that may be ground out without too much waste, takes it away, or otherwise leaves it untouched; and so the serenity of the mind is to be consulted without impairing its greatness. And thus much for the doctrine of self-good.

The good of communion, which regards society, usually goes by the name of duty, a word that seems more properly used of a mind well disposed toward others; while the term virtue is used of a mind well formed and composed within itself. Duty, indeed, seems at first to be of political consideration; but if thoroughly weighed, it truly relates to the rule and government of one's self, not others. And as in architecture it is one thing to fashion the pillars, rafters, and other parts of the building, and prepare them for the work, and another to fit and join them together, so the doctrine of uniting mankind in society differs from that which renders them conformable and well affected to the benefits of society.

[9] Juvenal, Sat. x. 360.

This part concerning duties is likewise divided into two—the one treating of the duties of man in common, and the other of respective duties, according to the profession, vocation, state, person, and degree of particulars.[10] The first of these, we before observed, has been sufficiently cultivated and explained by the ancient and later writers. The other also has been touched here and there, though not digested and reduced into any body of science.[11] We do not, however, except to its being treated piecemeal, as judging it the best way to write upon this subject in separate parts; for who will pretend he can justly discourse and define upon the peculiar and relative duties of all orders and conditions of men? But for treatises upon this subject, which have no tincture of experience, and are only drawn from general and scholastic knowledge, they commonly prove empty and useless performances; for though a bystander may sometimes see what escaped the player, and although it be a kind of proverb, more bold and true with regard to prince and people, "that a spectator in the valley takes the best view of a mountain," yet it were greatly to be wished that none but the most experienced men would write upon subjects of this kind; for the contemplations of speculative men in active matters appear no better to those who have been conversant in business than the dissertations of Phormio upon war appeared to Hannibal, who esteemed them but as dreams and dotage. One fault, however, dwells with such as write upon things belonging to their own office or art, viz., that they hold no mean in recommending and extolling them.

In speaking of books of this kind, it would indeed be sacrilege in me to omit mention of your Majesty's excellent

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[10] For the modern writers in this way, see Morhof's "Polyhistor," tom. iii. lib. i. "De Philosophiæ moralis Scriptoribus"; and "Stollii Introductio in Historiam Literariam, de Philosophia generatim morali"; in particular, consult Puffendorf, "De Officio Hominis and Civis."—*Shaw.*

[11] This appears to be attempted by Grotius, in his book "De Jure Belli ac Pacis"; and by Puffendorf, in his "De Jure Naturæ et Gentium." See M. Barbeyrac's translation of the latter into French, with annotations.—*Ib.*

work on the duty of a king. This work incloses the leading treasures of divinity, politics, and ethics, besides a sprinkling of all other arts; and I am not afraid to pronounce it one of the soundest and most profitable works I have ever read. It does not swell with the heat of invention, or flag with the coldness of negligence. The author is nowhere seized with that dizziness which confuses his sight of the main subject, and consequently avoids those digressions which, by a sort of circuitous method, descants on matter foreign to the purpose. Neither are its pages disfigured with the arts of rhetorical perfumes and paintings, designed rather to please the reader than to corroborate the argument. But they contain life and spirit, as well as solidity and bulk, containing excellent precepts, adapted as well to theoretical truth as to the expediency of use and action. The work is also entirely exempt from that vice even more censured, and which, if it were tolerable, it were so in kings, and in works on regal majesty, viz., that it does not exaggerate the privileges of the crown or invidiously exalt their power. For your Majesty has not described a king of Persia or Assyria, shining forth in all their pomp and glory, but a Moses and a David, pastors as well as rulers of their people. Nor can I forget that memorable saying which your Majesty delivered on an important point of judicature—That kings rule by the laws of their kingdoms, as God by the laws of nature, and ought as rarely to exercise their prerogative, which transcends law, as God exercises his power of working miracles. And in your Majesty's other book on a free monarchy, you give all men to understand that your Majesty knows and comprehends the plenitude of the regal power, as well as its limits; I, therefore, have not shrunk from citing this book as one of the best treatises ever published upon particular and respective duties. I can also assure your Majesty, that had the book been a thousand years in existence it would not have lost any of the praises I have bestowed upon it; nor am I prescribed by the adage which forbids praise in presence; since

this rule of decorum applies only to unseasonable and excessive eulogy. Surely Cicero, in his excellent oration in defence of Marcellus, is only bent upon drawing a picture with singular art, of Cæsar's virtues, though in his presence, as the second Pliny did for Trajan. But let us proceed with our subject.

To this part of the respective duties of vocations and particular professions belongs another, as a doctrine relative or opposite to it, viz., the doctrine of cautions, frauds, impostures, and their vices; for corruptions and vices are opposite to duties and virtues; not but some mention is already made of them in writings, though commonly but cursorily and satirically, rather than seriously and gravely; for more labor is bestowed in invidiously reprehending many good and useful things in arts and exposing them to ridicule, than in separating what is corrupt and vicious therein from what is sound and serviceable. Solomon says excellently, "A scorner seeks wisdom, and finds it not; but knowledge is easy to him that understands";[12] for whoever comes to a science with an intent to deride and despise, will doubtless find things enough to cavil at, and few to improve by. But the serious and prudent treatment of the subject we speak of may be reckoned among the strongest bulwarks of virtue and probity; for as it is fabulously related of the basilisk, that if he sees a man first, the man presently dies; but if the man has the first glance, he kills the basilisk: so frauds, impostures, and tricks do not hurt, if first discovered; but if they strike first, it is then they become dangerous, and not otherwise: hence we are beholden to Machiavel, and writers of that kind, who openly and unmasked declare what men do in fact, and not what they ought to do;[13] for it is impossible to join the wisdom of the serpent and the innocence of the dove, without a previous knowledge of

[12] Prov. xiv. 6.

[13] Perhaps the treatise of Hieron. Cardan "De Arcanis Prudentiæ Civilis," is a capital performance in this way; as exposing numerous tricks, frauds and stratagems of government, so as to prevent the honest-minded from being imposed upon by them.—*Shaw.*

the nature of evil; as without this, virtue lies exposed and unguarded. And further, a good and just man cannot correct and amend the vicious and the wicked, unless he has first searched into all the depths and dungeons of wickedness; for men of a corrupt and depraved judgment ever suppose that honesty proceeds from ignorance, or a certain simplicity of manners, and is rooted only in a belief of our tutors, instructors, books, moral precepts, and vulgar discourse, whence—unless they plainly perceive that their perverse opinions, their corrupt and distorted principles, are thoroughly known to those who exhort and admonish them as well as to themselves—they despise all wholesome advice; according to that admirable saying of Solomon, "A fool receives not the words of the wise, unless thou speakest the very things that are in his heart." [14] And this part of morality, concerning cautions and respective vice, we set down as wanting, under the name of sober satire, or the insides of things.

To the doctrine of respective duties belong also the mutual duties between husband and wife, parent and child, master and servant, as also the laws of friendship, gratitude, and the civil obligations of fraternities, colleges, neighborhoods, and the like, always understanding that these things are to be treated, not as parts of civil society, in which view they belong to politics, but so far as the minds of particulars ought to be instructed and disposed to preserve these bonds of society.

The doctrine of the good of communion, as well as of self-good, treats good not only simply, but comparatively, and thus regards the balancing of duty between man and man, case and case, private and public, present and future, etc.—as we may observe in the cruel conduct of Lucius Brutus to his own sons, which by the generality was extolled to the skies; yet another said,

"Infelix, utcunque ferent ea facta minores." [15]

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[14] Prov. xviii. 2.

[15] Virg. Æn. vi. 823.

So in the discourse between Brutus, Cassius, and others, as to the conspiracy against Cæsar, the question was artfully introduced whether it were lawful to kill a tyrant;[16] the company divided in their opinions about it, some saying it was lawful, and that slavery was the greatest of evils; others denying it, and asserting tyranny to be less destructive than civil war; while a third kind, as if followers of Epicurus, made it an unworthy thing that wise men should endanger themselves for fools. But the cases of comparative duties are numerous, among which this question frequently occurs, whether justice may be strained for the safety of one's country, or the like considerable good in future? as to which Jason the Thessalian used to say, Some things must be done unjustly, that many more may be done justly. But the answer is ready—Present justice is in our power, but of future justice we have no security: let men pursue those things which are good and just at present, and leave futurity to Divine providence.[17] And thus much for the doctrine of the image of good.[18]

CHAPTER III

The Culture of the Mind divided into the Knowledge of Characteristic Differences of Affections, of Remedies and Cures. Appendix relating to the Harmony between the Pleasures of the Mind and the Body

WE NEXT proceed to the cultivation of the mind, without which the preceding part of morality is no more than an image or beautiful statue, without life or motion. Aristotle expressly acknowledges as

[16] Plut. Life Brut. [17] Plutarch, Moral. Præc. Gerend. Reip. i. 24.

[18] Such was the pretext of Titus Quintius Flaminius, who, perceiving that the Achæan League, by which all the Grecian states were associated in one grand confederation, imposed the principal obstacle to the arms of Rome, deceitfully alleged that his sole design was to free each individual state from the thraldom of one dominant power, and leave it to the action of its own laws. The sequel showed, however, that his policy was only an exemplification of the old fable, for the untying the bundle was immediately followed by the subjugation of each community.—*Ed.*

much—"It is, therefore, necessary," says he, "to speak of virtue, what it is, and whence it proceeds; for it were in a manner useless to know virtue, and yet be ignorant of the ways to acquire her."[1] Concerning virtue, therefore, we must ascertain both what kind it is and by what means it may be acquired; for we desire a knowledge of the thing itself and the manner of procuring its pleasures.[2] And though he has more than once repeated the same thing, yet himself does not pursue it. And so Cicero gives it as a high commendation to the younger Cato, that he embraced philosophy, not for the sake of disputing, as most do, but of living philosophically.[3] And though at present few have any great regard to the cultivation and discipline of the mind and a regular course of life, as Seneca phrases it—"De partibus vitæ quisque deliberat, de summa nemo"[4]—whence this part may appear superfluous, yet we cannot be persuaded to leave it untouched, but rather conclude with the aphorism of Hippocrates, that those who labor under a violent disease, yet seem insensible of their pain, are disordered in their mind. And men in this case want not only a method of cure, but a particular remedy, to bring them to their senses. If any one shall object, that the cure of the mind is the office of divinity, we allow it; yet nothing excludes moral philosophy from the train of theology, whereto it is as a prudent and faithful handmaid, attending and administering to all its wants. But though, as the Psalmist observes, "the eyes of the maid are perpetually waiting on the hands of the mistress,"[5] yet doubtless many things must be left to the care and judgment of the servant. So ethics ought to be entirely subservient to theology, and obedient to the precepts thereof, though it may still contain many wholesome and useful instructions within its own limits. And therefore, when we consider the excellence of this part of morality, we cannot but greatly wonder it

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[1] Eth. Mag. ad init. [2] Mag. Moral. i. [3] Juv. Muræn. xxx. 62.
[4] Epist. lxxi. § 1. [5] Psal. cxxii. 3.

is not hitherto reduced to a body of doctrine, which we are obliged to note as deficient; and shall therefore give some sketch for supplying it.

And first, as in all cases of practice, we must here distinguish the things in our power, and those that are not: for the one may be altered, while the other can only be applied. Thus the farmer has no command over the nature of the soil, or the seasons of the year; nor the physician over the constitution of the patient, or the variety of accidents. In the cultivation of the mind, and the cure of its diseases, there are three things to be considered; viz., 1, the different dispositions; 2, the affections; and 3, the remedies: answering in physic to the constitution, the distemper, and the medicines. And of these three, only the last is in our power. Yet we ought as carefully to inquire into the things that are not in our power, as into those that are; because a clear and exact knowledge thereof is to be made the foundation of the doctrine of remedies, in order to their more commodious and successful application. For clothes cannot be made to fit, unless measure of the body be first taken.

The first article, therefore, of the culture of the mind, will regard the different natures or dispositions of men. But here we speak not of the vulgar propensities to virtues and vices, or perturbations and passions, but of such as are more internal and radical. And I cannot sometimes but wonder that this particular should be so generally neglected by the writers both of morality and politics; whereas it might afford great light to both these sciences. In astrological traditions, the natures and dispositions of men are tolerably distinguished according to the influences of the planets; whence some are said to be by nature formed for contemplation, others for politics, others for war, etc. So, likewise, among the poets of all kinds, we everywhere find characters of natures, though commonly drawn with excess, and exceeding the limits of nature. And this subject of the different characters of dispositions is one of those things

wherein the common discourse of men is wiser than books—a thing which seldom happens. But much the best matter of all for such a treatise may be derived from the more prudent historians; and not so well from elogies or panegyrics, which are usually written soon after the death of an illustrious person, but much rather from a whole body of history, as often as such a person appears: for such an interwoven account gives a better description than panegyric. And such examples we have in Livy, of Africanus and Cato; in Tacitus, of Tiberius, Claudius, and Nero; in Herodian, of Septimius Severus; in Philip de Comines, of Louis the Eleventh; in Guicciardini, of Ferdinand of Spain, the Emperor Maximilian, Pope Leo, and Pope Clement. For these writers having the image of the person to be described constantly before them, scarce ever mention any of their acts, but at the same time introduce something of their natures. So, likewise, some relations which we have seen of the conclaves at Rome give very exact characters of the cardinals: as the letters of ambassadors do of the counsellors of princes. Let, therefore, an accurate and full treatise be wrote upon this fertile and copious subject. But we do not mean, that these characters should be received in ethics as perfect civil images, but rather as outlines, and first drafts of the images themselves, which, being variously compounded and mixed one among another, afford all kinds of portraits. So that an artificial and accurate dissection may be made of men's minds and natures, and the secret disposition of each particular man laid open, that, from a knowledge of the whole, the precepts concerning the cures of the mind may be more rightly formed.[6]

And not only the characters of dispositions impressed

[6] Compare "Les Caractères des Passions," par M. de la Chambre, ed. Amst. 1658; M. Clarmont, "De Conjectandis latentibus Animi Affectibus," reprinted by Conringius; "Neuheusii Theatrum Ingenii humani, seu de Hominum cognoscenda Indole et Animi Secretis," 1633; Mr. Evelyn's digression concerning Physiognomy, in his Discourse of Medals; "Les Caractères de Théophraste, avec les Mœurs de ce Siècle," par M. de la Bruyère, 1700. See "Stollii Introductio in Historiam Literariam," p. 823. See also more to this purpose above, sect. iv.—*Ed.*

by nature should be received into this treatise, but those also which are otherwise imposed upon the mind by the sex, age, country, state of health, make of body, etc. And again, those which proceed from fortune, as in princes, nobles, common people, the rich, the poor, magistrates, the ignorant, the happy, the miserable, etc. Thus we see Plautus makes it a kind of miracle to find an old man beneficent.

"Benignitas quidem hujus oppidò ut adolescentuli est." [7]

And St. Paul, commanding a severity of discipline toward the Cretans, accuses the temper of that nation from the poet: "The Cretans are always liars, evil beasts, and slow bellies." [8] Sallust notes it of the temper of kings, that it is frequent with them to desire contradictories—"Plerumque regiæ voluntates, ut vehementes sunt; sic mobiles, sæpeque ipsæ sibi adversæ." [9] Tacitus observes, that "honors and dignities commonly change the temper of mankind for the worse." "Solus Vespasianus mutatus in melius." [10] Pindar remarks that "a sudden flush of good fortune generally enervates and slackens the mind."

"Sunt qui magnam felicitatem concoquere non possunt." [11]

The Psalmist intimates, that it is easier to hold a mean in the height, than in the increase of fortune—"If riches fly to thee, set not thy heart upon them." [12] It is true, Aristotle, in his Rhetorics, cursorily mentions some such observations; and so do others up and down in their writings: but they were never yet incorporated into moral philosophy, whereto they principally belong, as much as treatises of the difference of the soil and glebe belong to agriculture, or discourses of the different complexions or habits of the body to medicine. The thing must, therefore, be now procured, unless we would imitate the rashness of empirics, who employ the same remedies in all diseases and constitutions.

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[7] Miles Gloriosus, act 3. sc. i. v. 39.
[8] Epist. Tit. i. 12.
[9] Jugurtha, i, 50.
[10] Hist. i. 53, toward the end.
[11] Or, καταπέψαι μεγὰν ὄλβον οὐκ εδυνάσθη.—Olymp. i. 55.
[12] Psalm lxi. 11.

Next to this doctrine of characters follows the doctrine of affections and perturbations, which, we observed above, are the diseases of the mind. For as the ancient politicians said of democracies, that "the people were like the sea, and the orators like the wind"; so it may be truly said, that the nature of the mind would be unruffled and uniform, if the affections, like the winds, did not disturb it. And here, again, we cannot but remember that Aristotle, who wrote so many books of ethics, should never treat of the affections, which are a principal branch thereof; and yet has given them a place in his Rhetorics, where they come to be but secondarily considered:[13] for his discourses of pleasure and pain by no means answer the ends of such a treatise, no more than a discourse of light and splendor would give the doctrine of particular colors: for pleasure and pain are to particular affections, as light is to colors. The Stoics, so far as may be conjectured from what we have left of them, cultivated this subject better, yet they rather dwelt upon subtile definitions than gave any full and copious treatise upon it. We also find a few short elegant pieces upon some of the affections; as upon anger, false modesty, and two or three more; but to say the truth, the poets and historians are the principal teachers of this science; for they commonly paint to the life in what particular manner the affections are to be raised and inflamed, and how to be soothed and laid; how they are to be checked and restrained from breaking into action; how they discover themselves, though suppressed and smothered; what operations they have; what turns they take; how they mutually intermix; and how they oppose each other, etc. Among which, the latter is of extensive use in moral and civil affairs; I mean, how far one passion may regulate another, and how they employ each other's assistance to conquer some one, after the manner of hunters and fowlers, who take beast with beast, and bird with bird; which man, perhaps, without such assistance,

[13] See b. ii. and cf. Eth. Nic. ii. 4, 1.

could not so easily do. And upon this foundation rests that excellent and universal use of rewards and punishments in civil life.[14] For these are the supports of states, and suppress all the other noxious affections by those two predominant ones, fear and hope. And, as in civil government, one faction frequently bridles and governs another; the case is the same in the internal government of the mind.[15]

We come now to those things which are within our own power, and work upon the mind, and affect and govern the will and the appetite; whence they have great efficacy in altering the manners. And here philosophers should diligently inquire into the powers and energy of custom, exercise, habit, education, example, imitation, emulation, company, friendship, praise, reproof, exhortation, reputation, laws, books, studies, etc.; for these are the things which reign in men's morals. By these agents the mind is formed and subdued; and of these ingredients remedies are prepared, which, so far as human means can reach, conduce to the preservation and recovery of the health of the mind.

To give an instance or two in custom and habit, the opinion of Aristotle seems narrow and careless, which asserts that "custom has no power over those actions which are natural";[16] using this example, that if a stone be a thousand times thrown up into the air, yet it will acquire no tendency to a spontaneous ascent. And again, that "by often seeing or hearing, we see and hear never the better." For though this may hold in some things, where nature is absolute, yet it is otherwise in things where nature admits intension and remission in a certain latitude. He might have seen, that a strait glove, by being often drawn upon

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[14] See Butler's "Analogy," chap. on rewards and punishments.

[15] See "Lælius Peregrinus de noscendis et emendandis Animi Affectionibus," ed. Lipsiæ, 1714; "Placcius de Typo Medicinæ moralis"; M. Perault, "De l'Usage des Passions," 1668; "Johan. Francisc. Buddæus de Morbis mentis humanæ, de Sanitate mentis humanæ, et de Remediis morborum, quibus mens laborat," in his "Elementa Philosophiæ Practicæ," lib. de Philosophia morali, sect. iii. cap. 3, 4, 6. See "Stollii Introduct. in Historiam Literariam," pp. 813, 814.—*Shaw.*

[16] Nicom. Eth. ii. last ch.

the hand, will become easy; that a stick, by use and continuance, will acquire and retain a bend contrary to its natural one; that the voice, by exercise, becomes stronger and more sonorous; that heat and cold grow more tolerable by custom, etc. And these last two examples come nearer to the point than those he has produced. Be this as it will, the more certain he had found it that virtues and vices depended upon habit, the more he should have endeavored to prescribe rules how such habits were to be acquired or left off; since numerous precepts may be formed for the prudent directing of exercises, as well those of the mind as the body. We will here mention a few of them.

And the first shall be, that from the beginning we beware of imposing both more difficult, and more superficial tasks than the thing requires. For if too great a burden be laid upon a middling genius, it blunts the cheerful spirit of hope; and if upon a confident one, it raises an opinion, from which he promises himself more than he can perform, which leads to indolence; and in both cases the experiment will not answer expectation. And this always dejects and confounds the mind. But if the tasks are too light, a great loss is sustained in the amount of the progress.

Secondly, to procure a habit in the exercise of any faculty, let two seasons be principally observed: the one when the mind is best, and the other when it is worst disposed for business; that by the former, the greater despatch may be made; and by the latter, the obstructions of the mind may be borne down with a strenuous application; whence the intermediate times slide away the more easily and agreeably.

The third example shall be the precept which Aristotle transiently mentions; viz., to endeavor our utmost against that whereto we are strongly impelled by nature; thus, as it were, rowing against the stream, or bending a crooked stick the contrary way, in order to bring it straight.[17]

[17] Nicom. Eth. ii. 95, toward the end.

A fourth precept may be founded on this sure principle; that the mind is easier, and more agreeably drawn on to those things which are not principally intended by the operator, but conquered or obtained without premeditated design, because our nature is such, as in a manner hates to be commanded. There are many other useful precepts for the regulating of custom; and if custom be prudently and skilfully introduced, it really becomes a second nature; but if unskilfully and casually treated, it will be but the ape of nature, and imitate nothing to the life, or awkwardly, and with deformity.

So with regard to books, studies, and influence over our manners, there are numerous useful rules and directions. One of the fathers, in great severity, called poetry the devil's wine; as indeed it begets many temptations, desires, and vain opinions. And it is a very prudent saying of Aristotle, deserving to be well considered, that "young men are improper hearers of moral philosophy,"[18] because the heat of their passions is not yet allayed and tempered by time and experience. And to say the truth, the reason why the excellent writings and moral discourses of the ancients have so little effect upon our lives and manners, seems to be, that they are not usually read by men of ripe age and judgment, but wholly left to inexperienced youths and children. And are not young men much less fit for politics than for ethics, before they are well seasoned with religion, and the doctrines of morality and civility? For being, perhaps, depraved and corrupted in their judgment, they are apt to think that moral differences are not real and solid; but that all things are to be measured by utility and success. Thus the poet said, "Successful villany is called virtue" — "Prosperum et felix scelus, virtus vocatur."[19] And again, "Ille crucem pretium sceleris tulit, hic diadema."[20] The poets, indeed, speak in this manner satirically, and through indignation; but some books of politics

[18] Nic. Eth. i. 15. [19] Seneca, Herc. Fur. v. 251. [20] Juv. Sat. xiii. 105.

suppose the same positively, and in earnest. For Machiavel is pleased to say, "if Cæsar had been conquered, he would have become more odious than Catiline:" as if there was no difference, except in point of fortune, between a fury made up of lust and blood, and a noble spirit, of all natural men the most to be admired, but for his ambition. And hence we see how necessary it is for men to be fully instructed in moral doctrines and religious duties, before they proceed to politics. For those bred up from their youth in the courts of princes, and the midst of civil affairs, can scarce ever obtain a sincere and internal probity of manners. Again, caution also is to be used even in moral instructions, or at least in some of them, lest men should thence become stubborn, arrogant, and unsociable. So Cicero says of Cato: "The divine and excellent qualities we see in him are his own; but the things he sometimes fails in are all derived, not from nature, but his instructors."[21] There are many other axioms and directions concerning the things which studies and books beget in the minds of men; for it is true that studies enter our manners, and so do conversation, reputation, the laws, etc.

But there is another cure of the mind, which seems still more accurate and elaborate than the rest; depending upon this foundation, that the minds of all men are, at certain times, in a more perfect, and at others in a more depraved state. The design of this cure is, therefore, to improve the good times, and expunge the bad. There are two practical methods of fixing the good times; viz., 1, determined resolutions; and 2, observances or exercises; which are not of so much significance in themselves, as because they continually keep the mind in its duty. There are also two ways of expunging the bad times; viz., by some kind of redemption, or expiation of what is past, and a new regulation of life for the future. But this part belongs to religion, whereto moral philosophy is, as we said before, the genuine handmaid.

[21] Pro L. Muræna, 39.

We will therefore conclude these georgics of the mind with that remedy which of all others is the shortest, noblest, and most effectual for forming the mind to virtue, and placing it near a state of perfection; viz., that we choose and propose to ourselves just and virtuous ends of our lives and actions, yet such as we have in some degree the faculty of obtaining. For if the ends of our actions are good and virtuous, and the resolutions of our mind for obtaining them fixed and constant, the mind will directly mold and form itself at once to all kinds of virtue. And this is certainly an operation resembling the works of nature, while the others above mentioned seem only manual. Thus the statuary finishes only that part of the figure upon which his hand is employed, without meddling with the others at that time, which are still but unfashioned marble; whereas nature, on the contrary, when she works upon a flower or an animal, forms the rudiments of all the parts at once.[22] So when virtues are acquired by habit, while we endeavor at temperance, we make but little advances toward fortitude or the other virtues; but when we are once entirely devoted to just and honorable ends, whatever the virtue be which those ends recommend and direct, we shall find ourselves ready disposed, and possessed of some propensity to obtain and express it. And this may be that state of mind which Aristotle excellently describes, not as virtuous, but divine.[23] His words are these: "We may contrast humanity with that virtue which is above it, as being heroic and divine." And a little further on: "For as savage creatures are incapable of vice or virtue, so is the Deity." For the divine state is above virtue, which is only the absence of vice. So Pliny proposes the virtue of Trajan, not as an imitation, but

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[22] Harvey, who was Bacon's physician, and the most celebrated anatomist of his day, contradicts this doctrine, affirming that nature operates like man by production and elaboration of parts.—*Ed.*

[23] "Humanitati autem consentaneum est opponere eam quæ supra humanitatem est heroicam sive divinam virtutem"; and a little after, "Nam ut feræ neque vitium neque virtus est, hic neque Dei: sed hic quidem status altius quiddam virtute est, ille aliud quiddam a vitio."—Nic. Ethics, vii. 1.—*Ed.*

as an example of the divine virtue, when he says, "Men need make no other prayers to the gods than that they would be but as good and propitious to morals as Trajan was."[24] But this savors of the profane arrogance of the heathens, who grasped at shadows larger than the life. The Christian religion comes to the point, by impressing charity upon the minds of men; which is most appositely called the bond of perfection,[25] because it ties up and fastens all the virtues together. And it was elegantly said by Menander of sensual love, which is a bad imitation of the divine, that it was a better tutor for human life than a left-handed Sophist; intimating that the grace of carriage is better formed by love than by an awkward preceptor, whom he calls left-handed, as he cannot by all his operose rules and precepts, form a man so dexterously and expeditiously, to value himself justly, and behave gracefully, as love can do. So, without doubt, if the mind be possessed with the fervor of true charity, he will rise to a higher degree of perfection than by all the doctrine of ethics, which is but a Sophist compared to charity. And as Xenophon well observed,[26] while the other passions, though they raise the mind, yet distort and discompose it by their ecstasies and excesses; while love alone, at the same time composes and dilates it; so all other human endowments which we admire, while they exalt and enlarge our nature, are yet liable to extravagance: but of charity alone there is no excess. The angels aspiring to be like God in power, transgressed and fell: "I will ascend, and be like the Most High";[27] and man aspiring to be like God in knowledge, transgressed and fell: "Ye shall be as gods, knowing good and evil": but in aspiring to be like God in goodness or charity, neither man nor angel can or shall transgress. Nay, we are invited to an imitation of it: "Love your enemies; do good to those that hate you; pray for those that despitefully use and persecute you; that ye may be the children of your Father, which is in heaven: for

[24] Paneg. lxxiv. § 4 and 5.
[25] Colos. iii.
[26] Cyropædia.
[27] Isa. xiv. 14.

he maketh his sun to rise upon the good and upon the evil, and sends his rain upon the just and upon the unjust."[28] And thus we conclude this part of moral doctrine, relating to the georgics of the mind.

So in the archetype of the Divine nature—the heathen religion—the words "Optimus maximus," and the Scripture pronounces the mercy of God to be above all his works.[29]

We have now concluded that portion of morals which appertains to the georgics of the mind; and should any one imagine, in reading the different parts of this science which we have already handled, that all our labor consists in uniting into one digest of the sciences all that has been neglected by other writers, and that such a work is at best only supplying what is clear and evident, and easily arrived at by reflection, let him freely enjoy his judgment; but at the same time we beg him to keep in mind our first assertion, that we sought in these researches, not the flourish and ornament of things, but their use and verity. He may also recall the ancient parable of the Two Gates of Sleep:

> "Sunt geminæ Somni Portæ, quarum altera fertur
> Cornea, qua veris facilis datur exitus umbris:
> Altera, candenti perfecta nitens elephanto;
> Sed falsa ad cœlum mittunt insomnia manes." [30]

A gate of ivory is indeed very stately, but true dreams pass through the gate of horn.

There might, however, be added, by way of appendix, this observation, that there is a certain relation and congruity found between the good of the mind and the good of the body. For as the good of the body consists in—1. Health; 2. Comeliness; 3. Strength; and, 4. Pleasure—so the good of the mind, considered in a moral light, tends to render it—1. Sound and calm; 2. Graceful; 3. Strong and agile for all the offices of life; and, 4. Possessed of a constant quick sense of pleasure and noble satisfaction. But as the four former excellences are seldom found to-

[28] Matt. v. 44. [29] Eccles. xviii. 12. [30] Virg. Æn. vi. 893.

gether in the body, so are the four latter seldom found together in the mind.[31] For it is evident that many are full of wit and courage, without being either calm or elegant in their deportment, or beautiful in their person; others again possess an elegant and fine deportment, and yet eschew honesty and justice; others again have pure minds, but without any qualifications for the business of life;[32] others who perchance unite all these three qualities, possess a sullen humor of stoical sadness and stupidity—they practice a virtue, but refuse to enjoy its pleasures; and if perchance of these qualities two or three are sometimes found together, it seldom if ever happens that all four can be met with in the same person. And thus we have finished that principal branch of human philosophy, which considers man out of society, and as consisting of a body and a soul.

EIGHTH BOOK

CHAPTER I

Civil Knowledge divided into the Art of Conversation, the Art of Negotiation, and the Art of State Policy

THERE goes an old tradition, excellent King, that many Grecian philosophers had a solemn meeting before the ambassador of a foreign prince, where each endeavored to show his parts, that the ambassador might have somewhat to relate of the Grecian wisdom; but one among the number kept silence, so that the ambassador, turning to

[31] This doctrine of the georgics of the mind is expressly endeavored to be supplied by Professor Wesenfeld, in the books he entitles "Arnoldi Wesenfeld Georgica Animi et Vitæ, seu Pathologia practica, moralis nempe et civilis, ex physicis ubique fontibus repetita." Francof. 1695, and 1712. Some account of this work is given in the "Acta Eruditorum." Mens. August, 1696. See also "Joan. Franc. Brudens de Cultura Ingeniorum," ed. Halæ, 1699.—*Shaw.*

[32] Mirabeau expressed the same sentiment with his usual felicity. Energy of character is scarcely ever found except in union with violent temperaments. The wicked only are active.—*Ed.*

him, asked, "But what have you to say, that I may report it?" He answered, "Tell your king that you have found one among the Greeks who knew how to be silent."[1] Indeed, I had forgot in this compendium of arts to insert the art of silence. For as we are now soon to be led, by the course of the work, to treat the subject of government; and knowing that I write to a king who is so perfect a master of this science since his infancy, and being also mindful of the high office I hold under your Majesty, we thought we could not have a better occasion for putting the art of silence in practice.[2] Cicero makes mention not only of an art, but even of an eloquence to be found in silence; and relates in an epistle to Atticus, how once in conversation he made use of this art: "On this occasion," says he, "I assumed a part of your eloquence; for I said nothing." And Pindar, who peculiarly strikes the mind unexpectedly with some short surprising sentence, has this among the rest: "Things unsaid have sometimes a greater effect than said." And, therefore, I have determined either to be silent upon this subject, or, what is next to it, very concise.

Civil knowledge turns upon a subject of all others the most immersed in matter, and therefore very difficult to reduce to axioms. And yet there are some things that ease the difficulty. For, 1, as Cato said, "that the Romans were like sheep, easier to drive in the flock than single"; so in this respect the office of ethics is in some degree more difficult than that of politics.[3] 2. Again, ethics endeavors to tinge and furnish the mind with internal goodness, while civil doctrine requires no more than external goodness, which is sufficient for society.[4] Whence it often happens,

[1] Plut. Moral.

[2] The author here makes a compliment of his silence to King James, deeming it impertinent to speak of the arts of empire, to one who knew them so well; but the true reason appears to be, that he thought it improper to reveal the mysteries of state. See below, sect. xxv.—*Ed.*

[3] Plut. Cato.

[4] Hence there ought to be a due difference preserved between ethics and politics, though many writers seem to mix them together; and form a promiscuous doctrine of the law of nature, morality, policy, and religion together; as particularly certain Scriptural casuists, and political divines.—*Shaw.*

that a reign may be good and the times bad. Thus we sometimes find in sacred history, when mention is made of good and pious kings, that the people had not yet turned their hearts to the Lord God of their fathers. And therefore, in this respect also, ethics has the harder task. 3. States are moved slowly, like machines, and with difficulty; and consequently not soon put out of order. For, as in Egypt, the seven years of plenty supplied the seven years of famine; so in governments, the good regulation of former times will not presently suffer the errors of the succeeding to prove destructive. But the resolutions and manners of particular persons are more suddenly subverted; and this, in the last place, bears hard upon ethics, but favors politics.

Civil knowledge has three parts, suitable to the three principal acts of society; viz., 1. Conversation; 2. Business; and 3. Government. For there are three kinds of good that men desire to procure by civil society; viz., 1. Refuge from solitude; 2. Assistance in the affairs of life; and 3. Protection against injuries. And thus there are three kinds of prudence, very different, and frequently separated from each other; viz., 1. Prudence in conversation; 2. Prudence in business; 3. Prudence in government.[5]

Conversation, as it ought not to be overaffected, much

[5] From a mixture of these three parts of civil doctrine, there has of late been formed a new kind of doctrine, which they call by the name of civil prudence. This doctrine has been principally cultivated among the Germans; though hitherto carried to no great length. Hermannus Conringius has dwelt upon it at considerable length, in his book "De Civili Prudentia," published in the year 1662; and Christian Thomasius has treated it excellently in the little piece entitled, "Primæ Lineæ de Jure-consultorum Prudentia Consultatoria," etc., first published in the year 1705, but the third edition, with notes, in 1712. The heads it considers, are, 1, "de Prudentia in genere"; 2, "de Prudentia consultatoria"; 3, "de Prudentia Juris-consultorum"; 4, "de Prudentia consulendi intuitu actionum propriarum"; 5, "de Prudentia dirigendi actiones proprias in conversatione quotidiana"; 6, "de Prudentia in conversatione selecta"; 7, "de Prudentia intuitu societatum domesticarum"; 8, "de Prudentia in societate civili"; and 9, "de Prudentia alios et aliis consulendi." The little piece also of Andr. Bossius, "De Prudentia Civili comparanda," deserves the perusal. See Morhof, "De Prudentiæ Civilis Scriptoribus"; "Struvii Bibliotheca Philosophica," cap. 7; and "Stollii Introductio in Historiam Literariam, de Prudentia Politica."—*Shaw.*

less should it be slighted; since a prudent conduct therein not only expresses a certain gracefulness in men's manners, but is also of great assistance in the commodious despatch both of public and private business. For as action, though an external thing, is so essential to an orator as to be preferred before the other weighty and more internal parts of that art, so conversation, though it consist but of externals, is, if not the principal, at least a capital thing in the man of business, and the prudent management of affairs. What effect the countenance may have, appears from the precept of the poet—"Contradict not your words by your look"—

"Nec vultu destrue verba tuo." [6]

For a man may absolutely cancel and betray the force of speech by his countenance. And so may actions themselves, as well as words, be destroyed by the look; according to Cicero, who, recommending affability to his brother toward the provincials, tells him it did not wholly consist in giving easy access to them, unless he also received them with an obliging carriage. "It is doing nothing," says he, "to admit them with an open door and a locked-up countenance."

"Nil interest habere ostium apertum, vultum clausum." [7]

We learn also that Atticus, previous to the first interview between Cicero and Cæsar, in which the issue of the war was involved, seriously advised his friend, in his letters, to compose his countenance and assume a calm tranquillity. But if the management of the face alone has so great an effect, how much greater is that of familiar conversation, with all its attendants. Indeed the whole of decorum and elegance of manners seems to rest in weighing and maintaining, with an even balance, the dignity between ourselves and others; which is well expressed by Livy, though upon a different occasion, in that character of a person, where

[6] Ovid, Ars Amandi, i. 312.

[7] De Petit. Consulatus, xi. 44.

he says, that I may neither seem arrogant nor obnoxious; that is, neither forget my own nor others' liberty.[8]

On the other side; a devotion to urbanity and external elegance terminates in an awkward and disagreeable affectation. For what is more preposterous than to copy the theatres in real life? And though we did not fall into this vicious extreme, yet we should waste time and depress the mind too much by attending to such lighter matters. Therefore, as in universities, the students, too fond of company, are usually told by their tutors, that friends are the thieves of time; so the assiduous application to the decorum of conversation steals from the weightier considerations. Again, they who stand in the first rank for urbanity, and seem born, as it were, for this alone, seldom take pleasure in anything else, and scarce ever rise to the higher and more solid virtues. On the contrary, the consciousness of a defect in this particular makes us seek a grace from good opinion, which renders all things else becoming; but where this is wanting, men endeavor to supply it by good breeding. And further, there is scarce any greater or more frequent obstruction to business, than an overcurious observance of external decorum, with its attendant too solicitous and scrupulous a choice of times and opportunities. Solomon admirably says, "He that regards the winds shall not sow, and he that regards the clouds shall not reap."[9] For we must make opportunities oftener than we find them. In a word, urbanity is like a garment to the mind, and therefore ought to have the conditions of a garment; that is—1, it should be fashionable; 2, not too delicate or costly; 3, it should be so made, as principally to show the reigning virtue of the mind, and to supply or conceal deformity; 4, and lastly, above all things, it must not be too strait, so as to

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[8] Speech of Hanno. "Nunc interroganti senatori, pœniteatne me adhuc suscepti adversus Romanos belli? si reticeam, aut superbus aut obnoxius videar; quorum alterum est hominis alienæ libertatis obliti, alterum suæ." Livy, b. xxiii. c. 12.

[9] Eccles. xi. 4.

cramp the mind and confine its motions in business. But this part of civil doctrine relating to conversation is elegantly treated by some writers, and can by no means be reported as deficient.[10]

CHAPTER II

The Art of Negotiation divided into the Knowledge of Dispersed Occasions (Conduct in Particular Emergencies), and into the Science of Rising in Life. Examples of the former drawn from Solomon. Precepts relating to Self-advancement

WE DIVIDE the doctrine of business into the doctrine of various occasions, and the doctrine of rising in life. The first includes all the possible variety of affairs, and is as the amanuensis to common life; but the other collects and suggests such things only as regard the improvement of a man's private fortune, and may therefore serve each person as a private register of his affairs.

No one has hitherto treated the doctrine of business suitably to its merit, to the great prejudice of the character both of learning and learned men; for from hence proceeds the mischief, which has fixed it as a reproach upon men of letters, that learning and civil prudence are seldom found together. And if we rightly observe those three kinds of prudence, which we lately said belong to civil life, that of conversation is generally despised by men of learning as a servile thing and an enemy to contemplation; and for the

[10] It seems of late more cultivated among the French and Germans, than among the English. The "Morale du Monde"; the "Modèles de Conversation"; the "Réfléxions sur la Ridicule, and sur les moyens de l'éviter"; "La Politesse des Mœurs"; "L'Art de Plaire dans la Conversation"; and Frid. Gentzkenius's "Doctrina de Decoro," in his Systema Philosophiæ, deserve perusal. This last work, published in Germany, treats 1, of the nature of decorum and its foundation; 2, of national decorum; 3, of human decorum; 4, the decorum of youth and age; 5, the decorum of men and women; 6, the decorum of husband and wife; 7, the decorum of the clergy; 8, the decorum of princes; and 9, the decorum of the nobility and men of letters. See "Stollii Introductio in Historiam Literariam, de Doctrina ejus quod est Decorum," p. 795–6.—*Shaw.*

government of states, though learned men acquit themselves well when advanced to the helm, yet this promotion happens to few of them; but for the present subject, the prudence of business, upon which our lives principally turn, there are no books extant about it, except a few civil admonitions, collected into a little volume or two, by no means adequate to the copiousness of the subject. But if books were written upon this subject as upon others, we doubt not that learned men, furnished with tolerable experience, would far excel the unlearned, furnished with much greater experience, and outshoot them in their own bow.

Nor need we apprehend that the matter of this science is too various to fall under precept, for it is much less extensive than the doctrine of government, which yet we find very well cultivated. There seem to have been some professors of this kind of prudence among the Romans in their best days; for Cicero declares it was the custom, a little before his time, among the Senators most famous for knowledge and experience, as Coruncanius, Curius, Lælius, etc., to walk the forum at certain hours, where they offered themselves to be consulted by the people, not so much upon law, but upon business of all kinds; as the marriage of a daughter, the education of a son, the purchasing of an estate, and other occasions of common life.' Whence it appears, that there is a certain prudence of advising even in private affairs, and derivable from a universal knowledge of civil business, experience, and general observation of similar cases. So we find the book which Q. Cicero wrote to his brother, De Petitione Consulatus (the only treatise, so far as we know, extant upon any particular business), though it regarded chiefly the giving advice upon that present occasion, yet contains many particular axioms of politics, which were not only of temporary use, but prescribe a certain permanent rule for popular elections. But in this kind, there is nothing any way comparable to the aphorisms of Solomon, of whom the Scripture bears testimony, that "his heart was as

[1] Orat. § iii. 33.

the sand of the sea." [2] For the sand of the sea encompasses the extremities of the whole earth; so his wisdom comprehended all things, both human and divine. And in those aphorisms are found many excellent civil precepts and admonitions, besides things of a more theological nature, flowing from the depth and innermost bosom of wisdom, and running out into a most spacious field of variety. And as we place the doctrine of various occasions among the desid erata of the sciences, we will here dwell upon it a little, and lay down an example thereof, in the way of explaining some of these aphorisms or proverbs of Solomon.

A SPECIMEN OF THE DOCTRINE OF VARIOUS OCCASIONS IN THE COMMON BUSINESS OF LIFE, BY WAY OF APHORISM AND EXPLANATION

APHORISM I.—A soft answer appeases anger[3]

If the anger of a prince or superior be kindled against you, and it be now your turn to speak, Solomon directs, 1, that an answer be made; and, 2, that it be soft. The first rule contains three precepts; viz., 1, to guard against a melancholy and stubborn silence, for this either turns the fault wholly upon you, as if you could make no answer, or secretly impeaches your superior, as if his ears were not open to a just defence. 2. To beware of delaying the thing, and requiring a longer day for your defence; which either accuses your superior of passion, or signifies that you are preparing some artificial turn or color. So that it is always best directly to say something for the present, in your own excuse, as the occasion requires. And, 3. To make a real answer, an answer, not a mere confession or bare submission, but a mixture of apology and excuse. For it is unsafe to do otherwise, unless with very generous and noble spirits, which are extremely rare. Then follows the second rule, that the answer be mild and soft, not stiff and irritating.

[2] III. Kings iv. 27.

[3] Prov. xv. 1.

II.—A prudent servant shall rule over a foolish son, and divide the inheritance among the brethren[4]

In every jarring family there constantly rises up some servant or humble friend of sway, who takes upon him to compose their differences at his own discretion; to whom, for that reason, the whole family, even the master himself, is subject. If this man has a view to his own ends, he foments and aggravates the differences of the family; but if he prove just and upright, he is certainly very deserving. So that he may be reckoned even as one of the brethren, or at least have the direction of the inheritance in trust.

III.—If a wise man contends with a fool, whether he be in anger or in jest, there is no quiet[5]

We are frequently admonished to avoid unequal conflicts; that is, not to strive with the stronger: but the admonition of Solomon is no less useful, that we should not strive with the worthless; for here the match is very unequal, where it is no victory to conquer, and a great disgrace to be conquered. Nor does it signify if, in such a conquest, we should sometimes deal as in jest, and sometimes in the way of disdain and contempt; for what course soever we take, we are losers, and can never come handsomely off. But the worst case of all is, if our antagonist have something of the fool in him, that is, if he be confident and headstrong.

IV.—Listen not to all that is spoken, lest thou shouldst hear thy servant curse thee[6]

It is scarce credible what uneasiness is created in life by a useless curiosity about the things that concern us; as when we pry into such secrets, as, being discovered, give us distaste, but afford no assistance or relief. For, 1, there follows vexation and disquiet of mind, as all human things are full of perfidiousness and ingratitude. So that though we could procure some magic glass, wherein to view the animosities, and all that malice which is any way at work

[4] Prov. xvii. 2. [5] Prov. xxix. 9. [6] Eccles. vii. 22.

against us, it were better for us to break it directly than to use it. For these things are but as the rustling of leaves, soon over. 2. This curiosity always loads the mind with suspicion, which is a violent enemy to counsels, and renders them unsteady and perplexed. 3. It also frequently fixes the evils themselves, which would otherwise have blown over: for it is a dangerous thing to provoke the consciences of men, who, so long as they think themselves concealed, are easily changed for the better; but if they once find themselves discovered, drive out one evil with another. It was therefore justly esteemed the utmost prudence in Pompey that he directly burned all the papers of Sertorius, unperused by himself or others.

V.—Poverty comes as a traveller, but want as an armed man[7]

This aphorism elegantly describes how prodigals, and such as take no care of their affairs, make shipwreck of their fortunes. For debt, and diminution of the capital, at first steals on gradually and almost imperceptibly like a traveller, but soon after want invades as an armed man; that is, with a hand so strong and powerful as can no longer be resisted; for it was justly said by the ancients, that necessity is of all things the strongest. We must, therefore, prevent the traveller, and guard against the armed man.

VI.—He who instructs a scoffer, procures to himself reproach; and he who reproves a wicked man, procures to himself a stain[8]

This agrees with the precept of our Saviour, not to throw pearls before swine.[9] This aphorism distinguishes between the actions of precept and reproof, and again between the persons of the scorner and the wicked, and lastly, the reward is distinguished. In the former case, precept is repaid by a loss of labor, and in the latter, of reproof, it is repaid with a stain also. For when any one instructs and teaches a scorner, he first loses his time; in the next place, others laugh at his labor, as fruitless and misapplied; and lastly,

[7] Prov. vi. 11, and xxiv. 34. [8] Prov. ix. 7. [9] Matt. vii. 6.

the scorner himself disdains the knowledge delivered. But there is more danger in reproving a wicked man, who not only lends no ear, but turns again, and either directly rails at his admonisher, who has now made himself odious to him; or, at least, afterward traduces him to others.

VII.—A wise son rejoices his father, but a foolish son is a sorrow to his mother[10]

The domestic joys and griefs of father and mother from their children are here distinguished; for a prudent and hopeful son is a capital pleasure to the father, who knows the value of virtue better than the mother, and therefore rejoices more at his son's disposition to virtue. This joy may also be heightened, perhaps, from seeing the good effect of his own management, in the education of his son, so as to form good morals in him by precept and example. On the other hand, the mother suffers and partakes the most in the calamity of her son, because the maternal affection is the more soft and tender: and again, perhaps, because she is conscious that her indulgence has spoiled and depraved him.

VIII.—The memory of the just is blessed, but the name of the wicked shall rot[11]

We have here that distinction between the character of good and evil men, which usually takes place after death. For in the case of good men, when envy, that pursues them while alive, is extinguished, their name presently flourishes, and their fame increases every day. But the fame of bad men, though it may remain for a while, through the favor of friends and faction, yet soon becomes odious, and at length degenerates into infamy, and ends, as it were, in a loathsome odor.

IX.—He who troubles his own house, shall inherit the wind[12]

This is a very useful admonition, as to domestic jars and differences. For many promise themselves great matters

[10] Prov. x. 1. [11] Prov. x. 7. [12] Prov. xi. 29.

from the separation of their wives, the disinheriting of their children, the frequent changing of servants, etc., as if they should thence procure greater peace of mind, or a more successful administration of their affairs; but such hopes commonly turn to wind; these changes being seldom for the better. And such disturbers of their families often meet with various crosses and ingratitude, from those they afterward adopt and choose. They, by this means, also bring ill reports, and ambiguous rumors upon themselves. For as Cicero well observes, "All men's characters proceed from their domestics." [13] And both these mischiefs Solomon elegantly expresses by the "possession of the wind": for the frustration of expectation, and the raising of rumors, are justly compared to the winds.

X.—The end of a discourse is better than the beginnng[14]

This aphorism corrects a common error, prevailing not only among such as principally study words, but also the more prudent; viz., that men are more solicitous about the beginnings and entrances of their discourses than about the conclusions, and more exactly labor their prefaces and introductions than their closes. Whereas they ought not to neglect the former, but should have the latter, as being things of far the greater consequence, ready prepared beforehand; casting about with themselves, as much as possible, what may be the last issue of the discourse, and how business may be thence forwarded and ripened. They ought further, not only to consider the windings up of discourses relating to business, but to regard also such turns as may be advantageously and gracefully given upon departure, even though they should be quite foreign to the matter in hand. It was the constant practice of two great and prudent privy counsellors, on whom the weight of the kingdom chiefly rested, as often as they discoursed with their princes upon matters of state, never to end the conversation with what regarded the principal subject; but

[13] Petit. Consulatus, § 5.

[14] Eccles. vii. 9.

always to go off with a jest, or some pleasant device; and as the proverb runs, "Washing off their salt-water discourses with fresh at the conclusion." And this was one of the principal arts they had.

XI.—As dead flies cause the best ointment to yield an ill odor, so does a little folly to a man in reputation for wisdom and honor[15]

The condition of men eminent for virtue is, as this aphorism excellently observes, exceeding hard and miserable; because their errors, though ever so small, are not overlooked. But as in a clear diamond, every little grain, or speck, strikes the eye disagreeably, though it would not be observed in a duller stone; so in men of eminent virtue, their smallest vices are readily spied, talked of, and severely censured; while in an ordinary man, they would either have lain concealed, or been easily excused. Whence a little folly in a very wise man, a small slip in a very good man, and a little indecency in a polite and elegant man, greatly diminish their characters and reputations. It might, therefore, be no bad policy, for men of uncommon excellences to intermix with their actions a few absurdities, that may be committed without vice, in order to reserve a liberty, and confound the observation of little defects.

XII.—Scornful men insnare a city, but wise men prevent calamity[16]

It may seem strange, that in the description of men, formed, as it were, by nature, for the destruction of states, Solomon should choose the character, not of a proud and haughty, not of a tyrannical and cruel, not of a rash and violent, not of a seditious and turbulent, not of a foolish or incapable man, but the character of a scorner. Yet this choice is becoming the wisdom of that king, who well knew how governments were subverted, and how preserved. For there is scarce such another destructive thing to kingdoms, and commonwealths, as that the counsellors, or senators, who sit at the helm, should be naturally scorners; who, to

[15] Eccles. x. 1.

[16] Prov. xxix. 8.

show themselves courageous advisers, are always extenuating the greatness of dangers, insulting, as fearful wretches, those who weigh them as they ought, and ridiculing the ripening delays of counsel and debate, as tedious matters of oratory, unserviceable to the general issue of business. They despise rumors as the breath of the rabble, and things that will soon pass over, though the counsels of princes are to be chiefly directed from hence. They account the power and authority of laws but nets unfit to hold great matters. They reject, as dreams and melancholy notions, those counsels and precautions that regard futurity at a distance. They satirize and banter such men as are really prudent and knowing in affairs, or such as bear noble minds, and are capable of advising. In short, they sap all the foundations of political government at once—a thing which deserves the greater attention, as it is not effected by open attack, but by secret undermining; nor is it, by any means, so much suspected among mankind as it deserves.

XIII.—The prince who willingly hearkens to lies, has all his servants wicked[17]

When a prince is injudiciously disposed to lend a credulous ear to whisperers and flatterers, pestilent breath seems to proceed from him, corrupting and infecting all his servants; and now some search into his fears, and increase them with fictitious rumors; some raise up in him the fury of envy, especially against the most deserving; some, by accusing of others, wash their own stains away; some make room for the preferment and gratification of their friends, by calumniating and traducing their competitors, etc. And these agents are naturally the most vicious servants of the prince. Those again, of better principles and dispositions, after finding little security in their innocence, their master not knowing how to distinguish truth from falsehood, drop their moral honesty, go into the eddy winds of the court, and servilely submit to be carried about with them. For as Tacitus says of Claudius, "There is no safety with that

[17] Prov. xxix. 12.

prince, into whose mind all things are infused and directed."[18] And Comines well observes, that "it is better being servant to a prince whose suspicions are endless, than whose credulity is great."[19]

XIV.—A just man is merciful to the life of his beast, but the mercies of the wicked are cruel[20]

Nature has endowed man with a noble and excellent principle of compassion, which extends itself even to the brutes, that by divine appointment are made subject to him. Whence this compassion has some resemblance with that of a prince toward his subjects. And it is certain, that the noblest souls are most extensively merciful; for narrow and degenerate spirits think compassion belongs not to them, but a great soul, the noblest part of the creation, is ever compassionate. Thus under the old law there were numerous precepts not merely ceremonial, as the ordaining of mercy, for example, the not eating of flesh with the blood thereof, etc. So, likewise, the sects of the Essenes and Pythagoreans totally abstained from flesh, as they do also to this day, with an inviolated superstition, in some parts of the empire of Mogul. Nay, the Turks, though a cruel and bloody nation, both in their descent and discipline, give alms to brutes, and suffer them not to be tortured. But lest this principle might seem to countenance all kinds of compassion, Solomon wholesomely subjoins, "That the mercies of the wicked are cruel"; that is, when such great offenders are spared, as ought to be cut off with the sword of justice. For this kind of mercy is the greatest of all cruelties, as cruelty affects but particular persons; while impunity lets loose the whole army of evil-doers, and drives them upon the innocent.

XV.—A fool speaks all his mind, but a wise man reserves something for hereafter[21]

This aphorism seems principally levelled, not against the futility of light persons, who speak what they should con-

[18] Annals, xii. 3.
[19] Mémoires et Chroniques du Quinzième Siècle.
[20] Prov. xii. 1.
[21] Prov. xxix. 11.

ceal, nor against the pertness with which they indiscriminately and injudiciously fly out upon men and things, nor against the talkative humor with which some men disgust their hearers, but against a more latent failing, viz., a very imprudent and impolitic management of speech; when a man in private conversation so directs his discourse as, in a continued string of words, to deliver all he can say, that any way relates to the subject, which is a great prejudice to business. For, 1, discourse interrupted and infused by parcels, enters deeper than if it were continued and unbroken; in which case the weight of things is not distinctly and particularly felt, as having not time to fix themselves; but one reason drives out another before it had taken root. 2. Again, no one is so powerful or happy in eloquence, as at first setting out to leave the hearer perfectly mute and silent; but he will always have something to answer, and perhaps to object in his turn. And here it happens, that those things which were to be reserved for confutation, or reply, being now anticipated, lose their strength and beauty. 3. Lastly, if a person does not utter all his mind at once, but speaks by starts, first one thing, then another, he will perceive from the countenance and answer of the person spoken to, how each particular affects him, and in what sense he takes it; and thus be directed more cautiously to suppress or employ the matter still in reserve.

XVI.—If the displeasure of great men rise up against thee, forsake not thy place; for pliant behavior extenuates great offences[22]

This aphorism shows how a person ought to behave, when he has incurred the displeasure of his prince. The precept has two parts—1, that the person quit not his post; and 2, that he, with diligence and caution, apply to the cure, as of a dangerous disease. For when men see their prince incensed against them, what through impatience of disgrace, fear of renewing their wounds by sight, and partly to let their prince behold their contrition and humiliation,

[22] Eccles. x. 4.

it is usual with them to retire from their office or employ, and sometimes to resign their places and dignities into their prince's hands. But Solomon disapproves this method as pernicious. For, 1, it publishes the disgrace too much; whence both our enemies and enviers are more emboldened to hurt us, and our friends the more intimidated from lending their assistance. 2. By this means the anger of the prince, which perhaps would have blown over of itself, had it not been made public, becomes more fixed; and having now begun to displace the person, ends not but in his downfall. 3. This resigning carries something of ill-will with it, and shows a dislike of the times, which adds the evil of indignation to that of suspicion. The following remedies regard the cure: 1. Let him above all things beware how by any insensibility, or elation of mind, he seems regardless of his prince's displeasure, or not affected as he ought. He should not compose his countenance to a stubborn melancholy, but to a grave and decent dejection; and show himself, in all his actions, less brisk and cheerful than usual. It may also be for his advantage to use the assistance and mediation of a friend with the prince, seasonably to insinuate, with how great a sense of grief the person in disgrace is inwardly affected. 2. Let him carefully avoid even the least occasions of reviving the thing which caused the displeasure; or of giving any handle to fresh distaste, and open rebuke. 3. Let him diligently seek all occasions wherein his service may be acceptable to his prince, that he may both show a ready desire of retrieving his past offence, and his prince perceive what a servant he must lose if he quit him. 4. Either let him prudently transfer the blame upon others, or insinuate that the offence was committed with no ill design, or show that their malice, who accused him to the prince, aggravated the thing above measure. 5. Lastly, let him in every respect be watchful and intent upon the cure.

XVII.—The first in his own cause is just; then comes the other party, and inquires into him[23]

The first information in any cause, if it dwell a little with the judge, takes root, tinges, and possesses him so, as hardly to be removed again, unless some manifest falsity be found in the matter itself, or some artifice be discovered in delivering it. For a naked and simple defence, though just and prevalent, can scarce balance the prejudice of a prior information, or of itself reduce to an equilibrium the scale of justice that has once inclined. It is, therefore, safest for the judge to hear nothing as to the merits of a cause, before both parties are convened; and best for the defendant, if he perceive the judge prepossessed, to endeavor, as far as ever the case will allow, principally to detect some artifice, or trick, made use of by the plaintiff to abuse the judge.

XVIII.—He who brings up his servant delicately, shall find him stubborn in the end[24]

Princes and masters are, by the advice of Solomon, to observe moderation in conferring grace and favor upon their servants. This moderation consists in three things. 1. In promoting them gradually, not by sudden starts. 2. In accustoming them sometimes to denial. And 3, as is well observed by Machiavel, in letting them always have something further to hope for. And unless these particulars be observed, princes, in the end, will doubtless find from their servants disrespect and obstinacy, instead of gratitude and duty. For from sudden promotion arises insolence; from a perpetual obtaining one's desires, impatience of denial; and if there be nothing further to wish, there's an end of alacrity and industry.

XIX.—A man diligent in his business shall stand before kings, and not be ranked among the vulgar[25]

Of all the virtues which kings chiefly regard and require in the choice of servants, that of expedition and resolution

[23] Prov. xvii. 17; but the sense is different. [24] Prov. xxix. 21.
[25] Prov. xxii. 29. Franklin cited this aphorism as exemplified in his person.

in the despatch of business is the most acceptable. Men of depth are held suspected by princes, as inspecting them too close, and being able by their strength of capacity, as by a machine, to turn and wind them against their will and without their knowledge. Popular men are hated, as standing in the light of kings, and drawing the eyes of the multitude upon themselves. Men of courage are generally esteemed turbulent and too enterprising. Honest and just men are accounted morose, and not compliable enough to the will of their masters. Lastly, there is no virtue but has its shade, wherewith the minds of kings are offended; but despatch alone in executing their commands has nothing displeasing to them. Besides, the motions of the minds of kings are swift and impatient of delay; for they think themselves able to effect anything, and imagine that nothing more is wanting but to have it done instantly. Whence despatch is to them the most grateful of all things.

XX.—I saw all the living which walk under the sun, with the succeeding young prince that shall rise up in his stead[26]

This aphorism points out the vanity of those who flock about the next successors of princes. The root of this is the folly naturally implanted in the minds of men; viz., their being too fond of their own hopes: for scarce any one but is more delighted with hope than with enjoyment. Again, novelty is pleasing and greedily coveted by human nature; and these two things, hope and novelty, meet in the successor of a prince. The aphorism hints the same that was formerly said by Pompey to Sylla, and again by Tiberius of Macro, that the sun has more adorers rising than setting.[27] Yet rulers in possession are not much affected with this, or esteem it any great matter, as neither Sylla nor Tiberius did; but rather laugh at the levity of

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He was caressed by Louis XVI., feared by George III., and lived on terms of easy friendship with the heads of other powers who had combined against England. His pre-eminence he attributed entirely to his industry.—*Ed.*

[26] Eccles. iv. 15. Solomon, in his old age, seeing all his courtiers desert him to pay court to his son Rehoboam, uttered this sentiment.—*Ed.*

[27] Tacit Annals, vi.

men, and encounter not with dreams; for hope, as was well said, is but a waking dream.[28]

XXI.—There was a little city manned but by a few, and a mighty king drew his army to it, erecting bulwarks against it, and intrenched it round: now there was found within the walls a poor wise man, and he by his wisdom delivered the city; but none remembered the same poor man[29]

This parable describes the corrupt and malevolent nature of men, who, in extremities and difficulties, generally fly to the prudent and the courageous, though they before despised them; and as soon as the storm is over, they show ingratitude to their preservers. Machiavel had reason to put the question, "Which is the more ungrateful toward the well-deserving, the prince or the people"? though he accuses both of ingratitude.[30] The thing does not proceed wholly from the ingratitude either of princes or people, but it is generally attended with the envy of the nobility, who secretly repine at the event, though happy and prosperous, because it was not procured by themselves. Whence they lessen the merit of the author and bear him down.

XXII.—The way of the slothful is a hedge of thorns[31]

This aphorism elegantly shows that sloth is laborious in the end: for diligent and cautious preparation guards the foot from stumbling, and smooths the way before it is trod; but he who is sluggish, and defers all things to the last moment, must of necessity be at every step treading as upon brambles and thorns, which frequently detain and hinder him; and the same may be observed in the government of a family, where, if due care and forethought be used, all things go on calmly, and, as it were, spontaneously, without noise and bustle; but if this caution be neglected, when any great occasion arises, numerous matters crowd in to be done at once, the servants are in confusion, and the house rings.

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[28] Eccles. xiii. 18.
[29] Eccles. ix. 14.
[30] Discorso sepra Liv. lib. i.
[31] Prov. xv. 19.

XXIII.—He who respects persons in judgment does ill, and will forsake the truth for a piece of bread[32]

This aphorism wisely observes, that facility of temper is more pernicious in a judge than bribery; for bribes are not offered by all, but there is no cause wherein something may not be found to sway the mind of the judge, if he be a respecter of persons. Thus, one shall be respected for his country, another for his riches, another for being recommended by a friend, etc. So that iniquity must abound where respect of persons prevails, and judgment be corrupted for a very trifling thing, as it were for a morsel of bread.

XXIV.—A poor man, that by extortion oppresses the poor, is like a land-flood that causes famine[33]

This parable was anciently painted by the fable of the leech, full and empty; for the oppression of a poor and hungry wretch is much more grievous than the oppression of one who is rich and full; as he searches into all the corners and arts of exactions and ways of raising contributions. The thing has been also usually resembled to a sponge, which sucks strongly when dry, but less when moist. And it contains a useful admonition to princes, that they commit not the government of provinces or places of power to indigent men, or such as are in debt; and again to the people, that they permit not their kings to struggle with want.

XXV.—A just man falling before the wicked, is a troubled fountain and a corrupted spring[34]

This is a caution to states, that they should have a capital regard to the passing an unjust or infamous sentence in any great and weighty cause, where not only the guilty is acquitted, but the innocent condemned. To countenance private injuries, indeed, disturbs and pollutes the clear streams of justice, as it were, in the brook; but unjust and great public sentences, which are afterward drawn into precedents, infect and defile the very fountain of justice. For

[32] Prov. xxviii. 31. [33] Prov. xxviii. 3. [34] Prov. xxv. 29.

when once the court goes on the side of injustice, the law becomes a public robber, and one man really a wolf to another.

XXVI.—Contract no friendship with an angry man, nor walk with a furious one[35]

The more religiously the laws of friendship are to be observed among good men, the more caution should be used in making a prudent choice of friends. The nature and humor of friends, so far as concerns ourselves alone, should be absolutely tolerated; but when they lay us under a necessity, as to the character we should put on toward others, this becomes an exceeding hard and unreasonable condition of friendship. It is therefore of great moment to the peace and security of life, according to the direction of Solomon, to have no friendship with passionate men, and such as easily stir up or enter into debates and quarrels. For such friends will be perpetually entangling us in strifes and contentions, so that we must either break off with them or have no regard to our own safety.

XXVII.—He who conceals a fault seeks friendship, but he who repeats a matter separates friends[36]

There are two ways of composing differences and reconciling the minds of men; the one beginning with oblivion and forgiveness, the other with a recollection of the injuries, interweaving it with apologies and excuses. I remember it is the opinion of a very wise politician, "That he who treats of peace without repeating the conditions of the difference, rather deceives the mind with the sweetness of reconciliation than equitably makes up the matter." But Solomon, a still wiser man, is of a contrary opinion, and approves of forgetting, but forbids a repetition of the difference, as being attended with these inconveniences: 1, That is rakes into the old sore; 2, that it may cause a new difference; 3, and, lastly, that it brings the matter to end in excuses; whereas both sides had rather seem to forgive the injury than allow of an excuse.

[35] Prov. xxii. 24.

[36] Prov. xvii. 9.

XXVIII.—In every good work is plenty; but where words abound, there is commonly a want[37]

Solomon here distinguishes the fruit of the labor of the tongue, and that of the labor of the hand, as if from the one came want, and from the other abundance. For it almost constantly happens that they who speak much, boast much, and promise largely, are but barren, and receive no fruit from the things they talk of; being seldom industrious or diligent in works, but feed and satisfy themselves with discourse alone as with wind; while, as the poet intimates, "he who is conscious to himself that he can really effect," feels the satisfaction inwardly, and keeps silent:

"Qui silet est firmus":[38]

whereas, he who knows he grasps nothing but empty air, is full of talk and strange stories.

XXIX.—Open reproof is better than secret affection[39]

This aphorism reprehends the indulgence of those who use not the privilege of friendship freely and boldly to admonish their friends as well of their errors as their dangers. "What shall I do?" says an easy, good-natured friend, "or what course shall I take? I love him as well as man can do, and would willingly suffer any misfortune in his stead: but I know his nature; if I deal freely with him, I shall offend him; at least chagrin him, and yet do him no service. Nay, I shall sooner alienate his friendship from me, than win him over from those things he has fixed his mind upon." Such an effeminate and useless friend as this Solomon reprehends, and pronounces that greater advantage may be received from an open enemy; as a man may chance to hear those things from an enemy by way of reproach, which a friend, through too much indulgence, will not speak out.

XXX.—A prudent man looks well to his steps, but a fool turns aside to deceit[40]

There are two kinds of prudence; the one true and sound, the other degenerate and false: the latter Solomon

[37] Prov. xiv. 23.
[38] Ovid, Remedia Amoris, 697.
[39] Prov. xxvii. 5.
[40] Prov. xv. 21.

calls by the name of folly. The candidate for the former has an eye to his footings, looking out for dangers, contriving remedies, and by the assistance of good men defending himself against the bad: he is wary in entering upon business, and not unprovided of a retreat; watching for opportunities, powerful against opposition, etc. But the follower of the other is wholly patched up of fallacy and cunning, placing all his hope in the circumventing of others, and forming them to his fancy. And this the aphorism justly rejects as a vicious and even a weak kind of prudence. For, 1, it is by no means a thing in our own power, nor depending upon any constant rule; but is daily inventing of new stratagems as the old ones fail and grow useless. 2. He who has once the character of a crafty, tricking man, is entirely deprived of a principal instrument of business—trust; whence he will find nothing succeed to his wish. 3. Lastly, however specious and pleasing these arts may seem, yet they are often frustrated; as well observed by Tacitus, when he said, that crafty and bold counsels, though pleasant in the expectation, are hard to execute, and unhappy in the event.

XXXI.—Be not over-righteous, nor make thyself over-wise: for why shouldst thou suddenly be taken off![41]

There are times, says Tacitus, wherein great virtues meet with certain ruin.[42] And this happens to men eminent for virtue and justice, sometimes suddenly, and sometimes after it was long foreseen. But if prudence be also joined, so as to make such men cautious and watchful of their own safety, then they gain thus much, that their ruin shall come suddenly, and entirely from secret and dark counsels—whence they may escape envy, and meet destruction unexpected. But for that over-righteousness expressed in the aphorism, it is not understood of virtue itself, in which there is no excess, but of a vain and invidious affectation and show thereof, like what Tacitus intimates of Lepidus—making it

[41] Eccles. vii. 17.

[42] Hist. i. 2.

a kind of miracle that he never gave any servile opinion, and yet stood safe in severe times.[43]

XXXII.—Give occasion to a wise man, and his wisdom will be increased[44]

This aphorism distinguishes between that wisdom which has grown up and ripened into a true habit, and that which only floats in the brain, or is tossed upon the tongue without having taken root. The former, when occasion offers, is presently roused, got ready, and distended, so as to appear greater than itself; whereas the latter, which was pert before, stands amazed and confounded when occasion calls for it: so that the person who thought himself endowed with this wisdom, begins to question whether his preconceptions about it were not mere dreams and empty speculations.

XXXIII.—To praise one's friend aloud, rising early, has the same effect as cursing him[45]

Moderate and sensible praises, dropped occasionally, are of great service to the reputation and fortunes of men; while immoderate, noisy, and fulsome praises do no good, but rather hurt, as the aphorism expresses it. For, 1, they plainly betray themselves to proceed from an excess of goodwill, or to be purposely designed rather to gain favor with the person by false encomiums, than to paint him justly. 2. Sparing and modest praises generally invite the company somewhat to improve them, but profuse and immoderate ones to detract and take off from them. 3. The principal thing is, that immoderate praises procure envy to the person praised, as all extravagant commendations seem to reproach others that may be no less deserving.

XXXIV.—As the face shines in water, so are men's hearts manifest to the wise[46]

This aphorism distinguishes between the minds of prudent men and those of others, by comparing the former to water, or a mirror, which receives the forms and images of

[43] Annals, iv. 20.
[44] Prov. ix. 9.
[45] Prov. xxiv. 14.
[46] Prov. xxvii. 19.

things; while the latter are like earth, or unpolished stone, which reflects nothing. And the mind of a prudent man is the more aptly compared to a glass, because therein one's own image may, at the same time, be viewed along with those of others, which could not be done by the eye without assistance: but if the mind of a prudent man be so capacious as to observe and distinguish an infinite diversity of natures and manners in men, it remains that we endeavor to render it as various in the application as it is in the representation.

"Qui sapit, innumeris moribus aptus erit." [47]

If we have dwelt too long upon those parables, and used them for higher purposes than mere illustrations, the dignity of both author and subject must be our excuse. For thus, it was not only usual among the Jews, but very common also among the wise men of other ancient nations, when they had, by observation, hit upon anything useful in common life, to reduce and contract it into some short sentence, parable, or fable. Fables anciently supplied the defect of examples; but now that times abound with variety of histories, it is better and more enlivening to draw from real life. But the method of writing best suited to so various and intricate a subject as the different occasions of civil business, is that which Machiavel chose for treating politics; viz., by observation or discourse upon histories and examples.[48] For the knowledge which is newly drawn, and, as it were, under our own eye, from particulars, best finds the way to particulars again. And doubtless it is much more conducive to practice that the discourse follow the example, than that the example follow the discourse; and this regards not only the order, but the thing itself; for when an example is proposed as the basis of a discourse, it is usually proposed with its whole apparatus of circumstances, which may sometimes correct and supply it; whence it becomes as a model for imitation and practice; while ex-

[47] Ars Amandi, i. 760.

[48] Discorso sopra Liv.

amples, produced for the sake of the treatise, are but succinctly and nakedly quoted, and, as slaves, wholly attend the call of the discourse.

It is worth while to observe this difference, that as the histories of times afford the best matter for discourses upon politics, such as those of Machiavel,[49] so the histories of lives are most advantageously used for instructions of business, because they contain all the possible variety of occasions and affairs, as well great as small. Yet a more commodious foundation may be had for the precepts of business than either of these histories, and that is, the discoursing upon prudent and serious epistles, such as those of Cicero to Atticus; for epistles represent business nearer and more to the life than either annals or lives. And thus we have treated of the matter and form of the first part of the doctrine of business, which regards variety of occasions, and place it among the desiderata.

There is another part of the doctrine of business differing as much from the former as the being wise in general, and the being wise for one's self—the one seems to move as from the centre to the circumference, and the other as from the circumference to the centre. For there is a certain prudence of giving counsel to others, and another of looking to one's own affairs. Both these, indeed, are sometimes found united, but oftenest separate; as many are prudent in the management of their own private concerns, and weak in public administration, or the giving advice, like the ant, which is a wise creature for itself, but pernicious in a garden. This virtue of self-wisdom was not unknown even to the Romans, those great lovers of their country; whence, says the comedian, "the wise man forms his own fortune"—

"Nam pol sapiens fingit fortunam sibi";[50]

and they had it proverbial among them—"Every man's

[49] Especially his Il Principe, with the notes of Conringius, which was found in the carriage of Napoleon after the battle of Mont St. Jean, with the annotations of the emperor.—*Ed.*

[50] Plautus, Trinum. Act ii. sc. 2. v. 84.

fortune lies in his own hand''—''Faber quisque fortunæ propriæ.'' So Livy gives this character of the elder Cato: ''Such was his force of mind and genius, that wherever he had been born he seemed formed for making his own fortune.'' [51]

But if any one publicly professed or made open show of this kind of prudence, it was always accounted not only impolitic, but ominous and unfortunate, as was observed of Timotheus the Athenian, who, after having performed many great exploits for the honor and advantage of his country, and giving an account of his conduct to the people, as the manner then was, he concluded the several particulars thus: ''And here fortune had no share'';[52] after which time nothing ever succeeded in his hands. This was, indeed, too arrogant and haughty, like that of Pharaoh in Ezekiel, ''Thou sayest, The river is mine, and I made myself'';[53] or that of Habakkuk, ''They rejoice, and sacrifice to their net'';[54] or, again, that of Mezentius, who called his hand and javelin his god;

> ''Dextra mihi deus, et telum, quod missile libro,
> Nunc adsint'';[55]

or, lastly, that of Julius Cæsar, the only time that we find him betraying his inward sentiments; for when the Aruspex related to him that the entrails were not prosperous, he muttered softly, ''They shall be better when I please,'' which was said not long before his unfortuntae death.[56] And, indeed, this excessive confidence, as it is a profane thing, so it is always unhappy; whence great and truly wise men think proper to attribute all their successes to their felicity, and not to their virtue and industry. So Sylla styled himself happy, not great; and Cæsar, at another time, more advisedly said to the pilot, ''Thou carriest Cæsar and his fortune.'' [57]

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[51] Livy, xxxix. 40. [52] Plut. Sylla. [53] Ezek. xxix. 3.
[54] Habak. i. 15. [55] Æneid, x. 773. [56] Suetonius.
[57] Plutarch. Compare with this a curious letter from Cato to Cicero (ap. Cic. ad Fam. xv. 5), wherein he says, ''Supplicationem decretam, si tu, quâ in re

But these expressions—"Every one's fortune is in his own hand," "A wise man shall control the stars," "Every way is passable to virtue," etc.—if understood, and used rather as spurs to industry than as stirrups to insolence, and rather to beget in men a constancy and firmness of resolution than arrogance and ostentation, they are deservedly esteemed sound and wholesome; and hence, doubtless, it is that they find reception in the breasts of great men, and make it sometimes difficult for them to dissemble their thoughts; so we find Augustus Cæsar, who was rather different from than inferior to his uncle, though doubtless a more moderate man, required his friends, as they stood about his deathbed, to give him their applause at his exit,[58] as if conscious to himself that he had acted his part well upon the stage of life. And this part of doctrine also is to be reckoned as deficient, not but that it has been much used and beaten in practice, though not taken notice of in books. Wherefore, according to our custom, we shall here set down some heads upon the subject, under the title of the Self-politician, or the Art of rising in Life.

It may seem a new and odd kind of thing to teach men how to make their fortunes—a doctrine which every one would gladly learn before he finds the difficulties of it; for the things required to procure fortune are not fewer or less difficult than those to procure virtue. It is as rigid and hard a thing to become a true politician as a true moralist, yet the treating of this subject nearly concerns the merit and credit of learning. It is of great importance to the honor of learning, that men of business should know erudition is not like a lark, which flies high and delights in nothing but singing, but that it is rather like a hawk, which soars aloft indeed, but can stoop when she finds it convenient to pounce upon her prey. Again, this also regards the perfection of learning; for the true rule of a perfect inquiry

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nihil fortuito, sed summa tua ratione et continentia reipublicæ, provisum est diis immortalibus gratulari nos quam tibi referre acceptum mavis gaudeo."

[58] Suetonius.

is, that nothing can be found in the material globe which has not its correspondent in the crystalline globe—the understanding, or that there is nothing found in practice which has not its particular doctrine and theory. But learning esteems the building of a private fortune as a work of an inferior kind; for no man's private fortune can be an end any way worthy of his existence; nay, it frequently happens that men of eminent virtues renounce their fortune to pursue the things of a sublimer nature. Yet even private fortune, as it is the instrument of virtue and doing good, is a particular doctrine, worthy of consideration.

This doctrine has its precepts, some whereof are summary or collective, and others scattered and various. The collective precepts are founded in a just knowledge—1, of ourselves; and, 2, of others. Let this, therefore, be the first whereon the knowledge of the rest principally turns, that we procure to ourselves, as far as possible, the window once required by Momus, who, seeing so many corners and recesses in the structure of the human heart, found fault that it should want a window, through which those dark and crooked turnings might be viewed.[59] This window may be procured by diligently informing ourselves of the particular persons we have to deal with—their tempers, desires, views, customs, habits; the assistances, helps, and assurances whereon they principally rely, and whence they receive their power; their defects and weaknesses, whereat they chiefly lie open and are accessible; their friends, factions, patrons, dependants, enemies, enviers, rivals; their times and manner of access—

"Sola viri molles aditus et tempora noras";[60]

their principles, and the rules they prescribe themselves, etc. But our information should not wholly rest in the persons, but also extend to the particular actions, which

[59] Plato, Reip.; Lucan, Hermot. xx.; and Eras. Chil. i. 74.
[60] Æneid, iv. 423.

from time to time come upon the anvil; how they are conducted, with what success, by whose assistance promoted, by whom opposed, of what weight and moment they are, and what their consequences. For a knowledge of present actions is not only very advantageous in itself, but without it the knowledge of persons will be very fallacious and uncertain; for men change along with their actions, and are one thing while entangled and surrounded with business, and another when they return to themselves. And these particular informations, with regard to persons as well as actions, are like the minor propositions in every active syllogism; for no truth, nor excellence of observations or axioms, whence the major political propositions are formed, can give a firm conclusion, if there be an error in the minor proposition. And that such a kind of knowledge is procurable, Solomon assures us, who says, that "counsel in the heart of man is like a deep water, but a wise man will draw it out";[61] for although the knowledge itself does not fall under precept, because it regards individuals, yet instructions may be given of use for fetching it out.

Men may be known six different ways; viz.—1, by their countenances; 2, their words; 3, their actions; 4, their tempers; 5, their ends; and, 6, by the relation of others. 1. As to the countenance, there is no great matter in that old proverb, "Fronti nulla fides";[62] for although this may be said with some truth of the external and general composure of the countenance and gesture, yet there lie concealed certain more subtile motions and actions of the eyes, face, looks, and behavior, by which the gate, as it were, of the mind is unlocked and thrown open.[63] Who was more close than Tiberius? yet Tacitus observes a difference between his inward thoughts and his language in eulogizing the exploits of Drusus and Germanicus—thus characterizing his panegyric of the latter: "Magis in speciem verbis adornatis quam ut penitus sentire crederetur"; and then that of

[61] Prov. xx. 5.
[62] Martial, i. Ep. 25, v. 4.
[63] Cicero, Petit. Consulatus, § 2.

Drusus—"Paucioribus sed intentior, et fidâ oratione."[64] Again, Tacitus sketches the manner of the emperor on other occasions when he was less crafty, and sums up his remarks thus: "Quin ipse compositus alias atque velut eluctantium verborum; solutius promptiusque loquebatur quoties subveniret."[65] And indeed, it is hard to find so great and masterly a dissembler, or a countenance so well broke and commanded, as to carry on an artful and counterfeit discourse without some way or other betraying it.

2. The words of men are full of deceit; but this is well detected in two ways; viz., either when words are spoken on the sudden, or in passion. So Tiberius, being suddenly surprised and hurried beyond himself, with a stinging speech from Agrippina, went a step out of his natural dissimulation; for, says Tacitus, she thus drew an uncommon expression from his secret breast, and he rebuked her as being offended because she did not rule.[66] Whence the poet not unjustly calls these perturbations tortures, mankind being compelled by them to betray their own secrets.

——"Vino tortus et ira."[67]

And experience shows that there are very few so true to their own secrets, and of so close a temper, as not sometimes, through anger, ostentation, love to a friend, impotence of mind, or some other affection, to reveal their own thoughts. But nothing searches all the corners of the mind so much as dissimulation practiced against dissimulation, according to the Spanish proverb, "Tell a lie and find a truth."

3. Even facts themselves, though the surest pledges of the human mind, are not altogether to be trusted, unless first attentively viewed and considered as to their magnitude and propriety; for it is certain that deceit gets itself a credit in small things, that it may practice to more advantage in

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[64] Annals, i. 52. [65] Annals iv. 31. [66] Annals, iv. 52.
[67] Hor. Ep. ii. 18, v. 38. It must be remembered that Augustus had some intention of conferring the empire upon her husband Germanicus.—*Ed.*

larger. And the Italian thinks himself upon the cross with the crier, or put up to sale, when, without manifest cause, he is treated better than usual; for small favors lull mankind, and disarm them both of caution and industry; whence they are properly called by Demosthenes the baits of sloth. Again, we may clearly see the crafty and ambiguous nature of some actions which pass for benefits, from that trick practiced by Mucianus upon Antony; for after a pretended reconciliation he most treacherously advanced many of Antony's friends to lieutenancies, tribuneships, etc., and by this cunning entirely disarmed and defeated him; thus winning over Antony's friends to himself.[68]

But the surest key for unlocking the minds of others turns upon searching and sifting either their tempers and natures, or their ends and designs; and the more weak and simple are best judged by their temper, but the more prudent and close by their designs. It was prudently and wittily, though in my judgment not substantially, advised by the Pope's nuncio as to the choice of another to succeed him in his residence at a foreign court, that they should by no means send one remarkably but rather tolerably wise; because a man wiser than ordinary could never imagine what the people of that nation were likely to do. It is doubtless a common error, particularly in prudent men, to measure others by the model of their own capacity; whence they frequently overshoot the mark, by supposing that men project and form greater things to themselves, and practice more subtile arts than ever entered their minds. This is elegantly intimated by the Italian proverb—

> "Di denari, di senno, e di fede,
> C' ne manco che non crede";[69]

and therefore, in men of small capacities, who commit many absurdities, a conjecture must rather be formed from the

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[68] Tacit. Hist. iv.

[69] "There is always less money, less wisdom, and less honesty, than people imagine."

propensity of their nature than from their ends in view. Whence princes also, though for a quite different reason, are best judged by their tempers as private persons are by their ends; for princes, who are at the top of human desires, have seldom any ends to aspire after with ardor and perseverance, by the situation and distance whereof a direction and measure might be taken of their other actions. And this among others is a principal reason why their hearts, as the Scripture declares, are unsearchable.[70] But every private man is like a traveller, who proceeds intently to the end of his journey, where he sets up: hence one may tolerably conjecture what a private man will or will not do; for if a thing be conducive to his ends, it is probable he will do it; and vice versa. And this information, from the diversity of the ends and natures of men, may be taken comparatively as well as simply, so as to discover what humor or disposition overrules the rest. Thus Tigellinus, when he found himself outdone by Turpilianus, in administering and suggesting to Nero's pleasures, searched, as Tacitus says, into the fears of Nero, and by this means got rid of his rival.[71]

As for that second-hand knowledge of men's minds which is had from the relation of others, it will be sufficient to observe of it, that defects and vices are best learned from enemies, virtues and abilities from friends, manners and times from servants, and opinions and thoughts from intimate acquaintance; for popular fame is light, and the judgment of superiors uncertain, before whom men walk more masked and secret. The truest character comes from domestics—"Verior fama e domesticis emanat."[72]

But the shortest way to this whole inquiry rests upon three particulars; viz.—1. In procuring numerous friend-

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[70] Prov. xxv. 3.

[71] This expression occurs Tacit. Annal. xiv. 57. It is spoken, however, of the intrigues of Tigellinus against Plautus and Sulla, by which he induced Nero to have both of them murdered. Petronius Turpilianus was put to death by Galba because he had enjoyed Nero's confidence. Annal. xvi. 18, 19.

[72] Cicero, Petit. Consul.

snips with such as have an extensive and general knowledge both of men and things, or at least in securing a set of particular friends, who, according to the diversity of occasions, may be always ready to give a solid information upon any point that shall turn up. 2. In observing a prudent mean and moderation between the freedom of discourse and silence, using frankness of speech most frequently; but when the thing requires it, taciturnity; for openness of speech invites and excites others to use the same toward ourselves, which brings many things to our knowledge; while taciturnity procures trust, and makes men willing to deposit their secrets with us as in their own bosom. 3. In gradually acquiring such a habit of watchfulness and intentness in all discourse and action, as at once to promote the business in hand, yet take notice of incidental matters; for, as Epictetus would have a philosopher say to himself in every action, "I will do this, yet keep to my rule,"[73] so a politician should resolve with himself in every business, "I will drive this point, and yet learn somewhat of future use." And, therefore, such tempers as are wholly intent upon a present business without at all regarding what may intervene, which Montaigne acknowledges was his own defect, make excellent ministers of state, but fail in advancing their private fortunes. A principal caution must also be had to restrain the impetuosity and too great alacrity of the mind, lest much knowledge should drive us on to meddle in many matters; for nothing is more unfortunate and rash than such a procedure. Therefore the variety of knowledge to be here procured of men and things comes but to this, that we make a judicious choice both of the matters we undertake and of the persons whose assistance we use, that we may thence know how to manage and dispose all things with the greater dexterity and safety.

Next to the knowledge of others comes the knowledge of ourselves; and it requires no less diligence, but rather

[73] Enchiridion, iv.

more, to get a true and exact information of ourselves than of others. For that oracle, "Know thyself," is not only a rule of general prudence, but has also a principal place in politics. And St. James excellently observes of mankind, that "he who views his face in a glass, instantly forgets his features."[74] Whence we had need be often looking. And this also holds in politics. But there is a difference in glasses—the divine one, wherein we are to behold ourselves, is the Word of God; but the political glass is no other than the state of things and times wherein we live. A man, therefore, must make a thorough examination, not partially like a self-lover, into his own faculties, powers, and abilities, and again into his defects, inabilities, and obstacles, summing up the account, so as to make the latter constantly appear greater, and the former rather less than they are. And upon such an examination the following particulars may come to be considered.

Let the first particular be, how far a man's manners and temper suit with the times; for if they agree in all respects, he may act more freely and at large, and follow the bent of his genius; but if there be any contrariety, then he must walk more cautiously and covertly in the whole scene of his life, and appear less in public, as Tiberius did, who, being conscious that his temper suited not with the age, never frequented the public shows, and for the last twelve years of his life came not to the Senate; whereas Augustus lived continually in open sight.[75]

Let the second consideration be, how a man can relish the professions or kinds of life in use and repute, out of which he is to make a choice, so that if his profession be not already entered upon, he may take that which is most suitable to his genius; but if he be already got into a kind of life for which he is unfit, that he may, upon the first opportunity, quit it and take to another—as Valentine Borgia did,

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[74] Ep. i. 23, 24.

[75] The expression of Tacitus is, "alia Tiberio morum via." Annals, i. 54.

who, being educated by his father for the priesthood, afterward renounced, followed his own inclination, and appeared in a military character.

Let a third consideration be, how a man stands compared with his equals and rivals, who may also probably be his competitors in his fortune, and let him hold that course of life in which there is the greatest want of eminent men, and wherein it is most likely that himself may rise the highest, as Cæsar did, who was first an orator, a pleader, and scarce anything more than a gownman; but when he found that Cicero, Hortensius, and Catullus bore away the prize of eloquence, and that none had greatly signalized themselves in war, except Pompey, he quitted the gown, and taking a long farewell of civil power, went over to the arts of the general and the emperor, whereby he rose to the top pinnacle of sovereignty.

Let the fourth consideration be, to regard one's own nature and temper in the choice of friends and dependants; for different men require different kinds of friends—some those that are grave and secret, others such as are bold and ostentatious, etc. It is worth observing of what kind the friends of Julius Cæsar were; viz., Antony, Hirtius, Balbus, Dolobella, Pollio, etc., who usually swore to die that he might live;[76] thereby expressing an infinite affection for Cæsar, but an arrogance and contempt toward everybody else. And they were all men diligent in business, but of no great fame and reputation.

Let a fifth consideration be, to beware of examples, and not fondly square one's self to the imitation of others, as if what was achieved by them must needs be achieved by us, without considering the difference there may be between our own disposition and manners compared with theirs we propose to imitate. Pompey manifestly fell into this error, who, as Cicero writes of him, had these words often in his mouth—"Sylla could do this, why shall not I?"[77] In

[76] Ita vivente Cæsare moriar.

[77] Epist. Atticus, ix. Ep. 10.

which particular he greatly imposed upon himself; for Sylla's temper and method of acting differed infinitely from his—the one's being fierce, violent, and pressing to the end, the other's composed, mindful of the laws, and directing all to majesty and reputation; whence he was greatly curbed and restrained in executing his designs. And these considerations may serve as a specimen of the rest.

But it is not enough for a man to know himself; he must also consider how he may most commodiously and prudently —1, show, 2, express, 3, wind and fashion himself. 1. As for show, we see nothing more frequent in life than for the less capable man to make the greater figure. It is, therefore, no small excellence of prudence, by means of a certain act and grace, to represent one's best side to others, by setting out our own virtues, merits, and fortunes to advantage, which may be done without arrogance or rendering one's self disagreeable; and, on the other side, artificially concealing our vices, defects, misfortunes, and disgraces, dwelling upon the former, and turning them as it were to the light, but palliating the latter, or effacing them by a well-adapted construction or interpretation, etc. Hence Tacitus says of Mucianus, the most prudent man of his time and the most indefatigable in business, that "he had an art of showing the fair side of whatever he spoke or acted." [78] And certainly it requires some art to prevent this conduct from becoming fulsome and despicable; yet ostentation, though to the first degree of vanity, is a fault in ethics rather than in politics. For as it is usually said of calumny, that if laid on boldly some of it will stick, so it may be said of ostentation, unless perfectly monstrous and ridiculous, "Paint yourself strongly, and some of it will last." Doubtless it will dwell with the crowd, though the wiser sort smile at it; so that the reputation procured with the number will abundantly reward the contempt of a few. But if this ostentation be managed with decency and discretion, it may greatly con-

[78] Hist. ii. 80.

tribute to raise a man's reputation, as particularly if it carry the appearance of native candor and ingenuity, or be used at times surrounded with dangers, as among the military men in time of war. Or again, if our own praises are let fall as it were by accident, and be not too seriously or largely insisted on, or if any one, in praising himself, at the same time mixes it with censure and ridicule, or lastly, if he does it not spontaneously, but is provoked to it by the insolence and reproach of others. And there are many who, being by nature solid, and consequently wanting in this art of spreading canvas to their own honor, find themselves punished for their modesty, with some diminution of their dignity.

But however persons of weak judgment or too rigid morals may disallow this ostentation of virtue, no one will deny that we should endeavor to keep virtue from being undervalued through our neglect, and less esteemed than it deserves. This diminution in the esteem of virtue happens three ways; viz., 1. When a person presents and thrusts himself and his service into a business unasked; for such services are thought sufficiently rewarded by accepting them. 2. When a man at the beginning of a business overexerts himself, and performs that all at once, which should have been done gradually; though this, indeed, gains early commendation where affairs succeed; but in the end it produces satiety. 3. When a man is too quick and light in receiving the fruit of his virtue—in praise, applause, and favor—and pleases himself therewith; against which there is this prudent admonition, "Beware lest thou seem unaccustomed to great things, if such small ones delight thee."

A diligent concealment of defects is no less important than a prudent and artful manifestation of virtues. Defects are principally concealed and covered under three cloaks; viz., 1. Caution, 2. Pretext, and 3. Assurance. 1. We call that caution, when a man prudently keeps from meddling in matters to which he is unequal; while, on the

other hand, daring and restless spirits are injudiciously busying themselves in things they are not acquainted with, and thereby publish and proclaim their own defects. 2. We call that pretext, when a man with sagacity and prudence paves and prepares himself a way for securing a favorable and commodious interpretation of his vices and defects; as proceeding from different principles, or having a different tendency than is generally thought. For as to the concealment of vices, the poet said well, that vice often skulks in the verge of virtue.

"Sæpe latet vitium proximate boni." [79]

Therefore, when we find any defect in ourselves, we must endeavor to borrow the figure and pretext of the neighboring virtue for a shelter; thus the pretext of dulness is gravity; that of indolence, considerateness, etc. And it is of service to give out some probable reason for not exerting our utmost strength, and so make a necessity appear a virtue. 3. Assurance, indeed, is a daring, but a very certain and effectual remedy, whereby a man professes himself absolutely to slight and despise those things he could not obtain, like crafty merchants, who usually raise the price of their own commodities and sink the price of other men's. Though there is another kind of assurance, more impudent than this, by which a man brazens out his own defects, and forces them upon others for excellences; and the better to secure this end, he will feign a distrust of himself in those things wherein he really excels: like poets, who, if you except to any particular verse in their composition, will presently tell you that single line cost them more pains than all the rest; and then produce you another, as suspected by themselves, for your opinion; while, of all the number, they know it to be the best and least liable to exception. But above all, nothing conduces more to the well representing a man's self, and securing his own right, than not to disarm one's self by too much sweetness and good-nature, which exposes a man

[79] Ovid, Ars. Amand. i. 661

to injuries and reproaches; but rather, in all cases, at times, to dart out some sparks of a free and generous mind, that have no less of the sting than the honey. This guarded behavior, attended with a ready disposition to vindicate themselves, some men have from accident and necessity, by means of somewhat inherent in their person or fortune, as we find in the deformed, illegitimate, and disgraced; who, if they do not want virtue, generally prove fortunate.

The expressing or declaring of a man's self is a very different thing from the showing himself, as not relating to virtue, but to the particular actions of life. And here nothing is more politic than to preserve a prudent or sound moderation or medium in disclosing or concealing one's mind as to particular actions. For though profound silence, the hiding of counsels, and managing all things by blind and deaf artifice, is a useful and extraordinary thing; yet it often happens that dissimulation produces errors which prove snares. And we see that the men of greatest repute for politics, scruple not openly and generously to declare their ends without dissimulation: thus Sylla openly declared, "He wished all mortals happy or unhappy, as they were his friends or enemies." [80] So Cæsar, upon his first expedition into Gaul, professed "he had rather be the first man in an obscure village, than the second at Rome." [81] And when the war was begun, he proved no dissembler, if Cicero says truly of him, "That he did not refuse, but in a manner required to be called tyrant, as he was." [82] So we find, in an epistle of Cicero to Atticus, how little of a dissembler Augustus was, who, at his first entrance upon affairs, while he remained the delight of the Senate, used to swear in this form when he harangued the people: "Ita Parentis honores consequi liceat": [83] which was no less than tyranny itself. It is true, to salve the matter a little, he would at those times stretch his hand toward the statue of Julius Cæsar erected in the place, while the audience smiled, applauded,

[80] Plut. [81] Ib. [82] Epist. ad Att. x. Ep. iv. [83] B. xvi. Ep. 15.

admired, and cried out among themselves, "What does the youth mean?" but never suspected him of any ill design, who thus candidly and ingenuously spoke his mind.[84] And yet all these we have named were prosperous men. Pompey, on the other hand, who endeavored at the same ends by more dark and concealed methods,[85] wholly bent himself, by numberless stratagems, to cover his desires and ambition, while he brought the state to confusion, that it might then of necessity submit to him, and he thus procure the sovereignty to appearance against his will. And when he thought he had gained his point, as being made sole consul, which no one ever was before him, he found himself never the nearer, because those who would doubtless have assisted him, understood not his intentions; so that at length he was obliged to go in the beaten path, and under pretence of opposing Cæsar, procured himself arms and an army: so slow, casual, and generally unsuccessful, are the counsels covered with dissimulation! And Tacitus seems to have had the same sentiment, when he makes the artifice of dissimulation an inferior prudence, compared with policy, attributing the former to Tiberius, and the latter to Augustus; for speaking of Livia, he says, "She was well tempered with the arts of her husband, and the dissimulation of her son."[86]

As for the bending and forming of the mind, we should doubtless do our utmost to render it pliable, and by no means stiff and refractory to occasions and opportunities; for to continue the same men, when we ought not, is the greatest obstacle business can meet with; that is, if men remain as they did, and follow their own nature after the opportunities are changed.[87] Whence Livy, introducing the elder Cato as a skilful architect of his own fortune, adds that "he was of a pliant temper":[88] and hence it is, that grave, solemn, and unchangeable natures generally meet with more

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[84] Ore probo, animo inverecundo. Sallust.
[85] Occultior, non melior. Tacit. Hist. ii. c. 38.
[86] Annals, v. 1.
[87] Cic. in Brut. speaking of Hortensius, c. 95.
[88] B. xxxix. 40.

respect than felicity. This defect some men have implanted in them by nature, as being in themselves stiff, knotty, and unfit for bending; but in others it is acquired by custom, which is a second nature, or from an opinion, which easily steals into men's minds, that they should never change the method of acting they had once found good and prosperous. Thus Machiavel prudently observes of Fabius Maximus, "That he would obstinately retain his old inveterate custom of delaying and protracting the war, when now the nature was changed and required brisker measures." [89] In others again, the same defect proceeds from want of judgment, when men do not seasonably distinguish the periods of things and actions, but alter too late, after the opportunity is slipped. And something of this kind Demosthenes reprehended in the Athenians, when he said, "They were like rustics in a fencing school, who always, after a blow, guard the part that was hit, and not before." [90] And lastly, this defect in others, because they are unwilling that the labor they have taken in the way once entered should be lost, and know not how to sound a retreat, but rather trust they shall conquer occasions by perseverance. But this obstinacy and restiveness of the mind, from whatever root it proceeds, is highly prejudicial to business and men's private fortunes: on the contrary, nothing is more politic than to make the wheels of the mind concentric with the wheels of fortune, and capable of turning together with them. And thus much of the two summary or collective precepts for advancing one's fortune.

The scattered precepts for rising in life are numerous: we shall single out a few by way of example. The first is, that the builder of his fortune properly use and apply his rule, that is, accustom his mind to measure and estimate the price and value of things, as they conduce more or less to his particular fortune and ends, and this with diligence, not by halves. It is surprising, yet very true, that many have

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[89] Discorso sopra Liv.

[90] Philippic i.

the logical part of their mind set right and the mathematical wrong, and judge truly of the consequences of things, but very unskilfully of their value. Hence some men are fond of access to and familiarity with princes; others of popular fame, and fancy these to be great enjoyments; whereas both of them are frequently full of envy and dangers. Others, again, measure things according to their difficulty and the labor bestowed in procuring them, imagining themselves must needs have advanced as far as they have moved. So Cæsar, to describe how diligent and indefatigable the younger Cato was to little purpose, said in the way of irony, "That he did all things with great labor." And hence it happens, that men frequently deceive themselves, when, having the assistance of some great or honorable personage, they promise themselves all manner of success; while the truth is, they are not the greatest, but the fittest instruments that perform business best and quickest. For improving the true mathematics of the mind, it should be principally noted what ought to come first, what second, etc., in the raising and promoting a man's fortune. And, in the first place, we set down the emendation of the mind; for by removing the obstacles, and levelling the inequalities of the mind, a way may be sooner opened to fortune, than the impediments of the mind be removed with the assistance of fortune. And, in the second place, we set down riches, whereto most, perhaps, would have assigned the first, as their use is so extensive. But we condemn this opinion for a reason like that of Machiavel in a similar case; for though it was an established notion, that "Money is the sinews of war," he said, more justly, that "War had no sinews but those of good soldiers." In the same manner, it may be truly affirmed that the sinews of fortune are not money, but rather the powers of the mind, address, courage, resolution, intrepidity, perseverance, moderation, industry, etc. In the third place come fame and reputation; and this the rather, because they have certain tides and seasons, wherein, if they be not opportunely used, it will be difficult to recover them

again; for it is a hopeless attempt to recover a lost reputation. In the last place, we set down honors, which are easier acquired by any of the former three, much more by a conjunction of them all, than any one of them can be procured by honors. But as much depends upon observing the order of things, so likewise in observing the order of time, in disturbing of which men frequently err and hasten to the end, when they should only have consulted the beginning, and suddenly flying at the greatest things of all, rashly skip over those in the middle—thus neglecting the useful precept, "Attend to what is immediately before you"—

"Quod nunc instat agamus." [91]

Our second precept is, to beware of being carried by greatness and presumption of mind to things too difficult, and thus of striving against the stream. It is a prudent advice, in the raising of one's fortune, to yield to necessity.

"Fatis accede, deisque." [92]

Let us look all round us, and observe where things lie open, where they are inclosed and locked up, where they stoop, and where they mount, and not misemploy our strength where the way is impassable: in doing this we shall prevent repulse, not stick too long in particulars, win a reputation of being moderate, give little offence, and lastly, gain an opinion of felicity; while the things that would probably have happened of themselves, will be attributed to our own industry.

A third precept, which seems somewhat to cross the former, though not when well understood, is, that we do not always wait for opportunities, but sometimes excite and lead them. This Demosthenes intimates in a high strain, when he says, "That as it is a maxim for the general to lead his army, so a wise man should lead things, make them exe-

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[91] Virg. Eclog. ix. 66.

[92] Lucan, viii. 486. Quoted also by Jeremy Taylor in his "Life of Christ," Preface.

cute his will, and not himself be obliged to follow events." [93] And if we attend, we shall find two different kinds of men held equal to the management of affairs; for some know how to make an advantageous use of opportunities, yet contrive or project nothing of themselves; while others are wholly intent upon forming schemes, and neglect the laying hold of opportunities as they offer: but either of these faculties is quite lame without the other.

It is a fourth precept to undertake nothing that necessarily requires much time, but constantly to remember time is ever on the wing—

"Sed fugit interea, fugit irreparabile tempus." [94]

And the only reason why those who addict themselves to toilsome professions and employs, as lawyers, authors, etc., are less versed in making their fortune, is the want of time from their other studies to gain a knowledge of particulars, wait for opportunities, and project their own rising. We see in the courts of princes the most effectual men in making their own fortunes, and invading the fortunes of others, are such as have no public employ, but are continually plotting their own rise and advantage.

A fifth precept is, that we in some measure imitate nature, which does nothing in vain; and this is not very difficult, if we skilfully mix and interlace our affairs of all kinds: for in every action the mind is to be so instructed and prepared, and our intentions to be so dependent upon and subordinate to each other, that if we cannot gain the highest step, we may contentedly take up with the second, or even the third. But if we can fix on no part of our prospect, then we should direct the pains we have been at to some other end; so, as if we receive no benefit for the present, yet at least to gain somewhat of future advantage. But if we can obtain no solid good from our endeavor neither in present nor in future, let us endeavor at least to gain a reputation by it, or some one thing or other; always

[93] Philippic i. 51.

[94] Georg. iii. 284.

computing with ourselves, that from every action we receive some advantage more or less, and by no means suffering the mind to despond or be astonished when we fail of our principal end. For there is nothing more contrary to political prudence than to be wholly intent upon any single thing, as he who is so must lose numberless opportunities which come sidewise in business, and which perhaps would be more favorable and conducive to the things that shall turn up hereafter, than to those that were before pursued. Let men therefore well understand the rule—"These things should be done, but those should not be omitted."[95]

The sixth precept is, that we do not too peremptorily oblige ourselves to anything, though it seem at first sight not liable to contingency; but always reserve a window open to fly out, or some secret back-door for retreat.

A seventh precept is, that old one of Bias, provided it be not used treacherously, but only by way of caution and moderation—"Love your friend as if he were to become an enemy, and hate your enemy as if he were to become your friend";[96] for it surprisingly betrays and corrupts all sorts of utility, to plunge one's self too far in unhappy friendships, vexations, and turbulent quarrels or childish and empty emulations. And so much, by way of example, upon the doctrine or art of rising in life.

We are well aware that good fortune may be had upon easier conditions than are here laid down; for it falls almost spontaneously upon some men, while others procure it only by diligence and assiduity, without much art, though still with some caution. But as Cicero, when he draws the perfect orator, does not mean that every pleader either could or should be like him; and as in describing the prince or the politician, which some have undertaken, the model is

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[95] Which is inculcated by ancient as well as modern wisdom. Epic. Enchir. and Matt. xx. 23, and Luke xi. 42.—*Ed.*

[96] Arist. Rhet. ii. 13, 4; and cf. Cic. Læl. xvi. Canning, in one of his speeches, condemns this principle as unworthy of an honorable mind. But it undoubtedly contains much wisdom, when it is restricted to the moderation of the affections.—*Ed.*

formed to the perfect rules of art, and not according to common life—the same method is observed by us in this sketch of the self-politician.

It must be observed that the precepts we have laid down upon this subject are all of them lawful, and not such immoral artifices as Machiavel speaks of, who directs men to have little regard for virtue itself, but only for the show and public reputation of it: "Because," says he, "the credit and opinion of virtue are a help to a man, but virtue itself a hindrance."[97] He also directs his politician to ground all his prudence on this supposition, that men cannot be truly and safely worked to his purpose but by fear, and therefore advises him to endeavor, by all possible means, to subject them to dangers and difficulties. Whence his politician may seem to be what the Italians call a sower of thorns.[98] So Cicero cites this principle, "Let our friends fall, provided our enemies perish";[99] upon which the triumvirs acted, in purchasing the death of their enemies by the destruction of their nearest friends. So Catiline became a disturber and incendiary of the state, that he might the better fish his fortune in troubled waters, declaring, that if his fortune was set on fire, he would quench it, not with water, but destruction.[100] And so Lysander would say, that children were to be decoyed with sweetmeats and men by false oaths; and there are numerous other corrupt and pernicious maxims of the same kind, more indeed, as in all other cases, than of such as are just and sound. Now if any man delight in this corrupt or tainted prudence, we deny not but he may take a short cut to fortune, as being thus disentangled and set at large from all restraint of laws, good-nature, and virtue, and having no regard but to his own promotion—though it is in life as in a journey, where the shortest road is the dirtiest, and yet the better not much about.

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[97] Libro del Principe.
[98] Il seminatore delle spine.
[99] Cadant amici, dummodo inimici intercidant. Orat. pro reg. Deiot.
[100] Cicero pro L. Murænа, and Cat. Conspir. 31.

But if men were themselves, and not carried away with the tempest of ambition, they would be so far from studying these wicked arts, as rather to view them, not only in that general map of the world, which shows all to be vanity and vexation of spirit,[101] but also in that more particular one, which represents a life separate from good actions as a curse; that the more eminent this life, the greater the curse; that the noblest reward of virtue is virtue itself; that the extremest punishment of vice is vice itself; and that as Virgil excellently observes, good actions are rewarded, as bad ones also are punished—by the consciousness that attends them.

> "Quæ vobis, quæ digna, viri, pro laudibus istis
> Præmia posse rear solvi? Pulcherrima primum
> Dii moresque dabunt vestri." [102]

And, indeed, while men are projecting and every way racking their thoughts to provide and take care for their fortunes, they ought, in the midst of all, to have an eye to the Divine Providence, which frequently overturns and brings to naught the machinations and deep devices of the wicked, according to that of the Scripture, "He has conceived iniquity, and shall bring forth vanity." [103] And although men were not in this pursuit to practice injustice and unlawful arts, yet a continual and restless search and striving after fortune, takes up too much of their time, who have nobler things to observe, and prevents them from paying their tribute to God, who exacts from all men the tenth part of their substance and the seventh of their time. Even the heathens observed, that man was not made to keep his mind always on the ground; and, like the serpent, eating the dust—

> "Atque affigit humo divinæ particulam auræ." [104]

And again—

> "Os homini sublime dedit, cœlumque tueri
> Jussit; et erectos ad sidera tollere vultus." [105]

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[101] Eccles. i. 2–14.
[102] Æneid, ix. 252.
[103] Psal. vii. 15, but in another sense.
[104] Hor. Sat. ii. 79.
[105] Ovid. Metam. i. 85.

Some, however, may flatter themselves, that, by what sinister means soever their fortune be procured, they are determined to use it well when obtained; when it was said of Augustus Cæsar and Septimus Severus, that "they ought never to have been born, or never to have died": so much evil they committed in aspiring, and so much good they did when seated. But let such men know that this recompensing of evil with good, though it may be approved after the action, yet is justly condemned in the design. Lastly, it may not be amiss, in this eager pursuit of fortune, for men to cool themselves a little with the saying of Charles the Fifth to his son; viz. "Fortune is like the ladies, who generally scorn and discard their overearnest admirers." But this last remedy belongs to such as have their taste vitiated by a disease of the mind. Let mankind rather rest upon the cornerstone of divinity and philosophy, both which nearly agree in the thing that ought first to be sought. For Divinity says, "Seek ye first the kingdom of God, and all other things shall be added unto you":[106] so philosophy directs us first to seek the goods of the mind, and the rest will either be supplied, or are not much wanted. For although this foundation, laid by human hands, is sometimes placed upon the sand, as in the case of Brutus, who, at his death, cried out, "O virtue, I have reverenced thee as a being, but alas, thou art an empty name!"[107] yet the same foundation is ever, by the Divine hand, fixed upon a rock. And here we conclude the doctrine of rising in life, and the general doctrine of business, together.

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[106] Matt. vi. 33.

[107] Ὦ τλῆμον ἀρετὴ, λόγος ἄρ' ἦσθ', ἐγὼ δέ σε
Ὡς ἔργον ἤσκουν· σὺ δ' ἄρ' ἐδούλευες τοχῇ.—Dio. Cass. xlvii. 49.

CHAPTER III

The Arts of Empire or State Policy omitted. Two Deficiencies alone noticed. The Art of Enlarging the Bounds of Empire, and the Knowledge of Universal Justice drawn from the Fountains of Law

WE COME now to the art of empire, or the doctrine of governing a state, which includes economics, as a city includes a family. But here, according to my former resolution, I impose silence upon myself; how well qualified soever I might seem to treat the subject, from the constant course of life, studies, employs, and the public posts I have, for a long series of years, sustained, even to the highest in the kingdom, which, through his Majesty's favor, and no merit of my own, I held for four years. And this I speak to posterity, not out of ostentation; but because I judge it may somewhat import the dignity of learning, to have a man born for letters rather than anything else, who should, by a certain fatality, and against the bent of his genius, be compelled into active life, and yet be raised, by a prudent king, to the greatest posts of honor, trust, and civil employ. And if I should hereafter have leisure to write upon government, the work will probably either be posthumous or abortive. But in the meantime, having now seated all the sciences, each in its proper place, lest such a high chair as that of government should remain absolutely vacant, we here observe, that two parts of civil doctrine, though belonging not to the secrets of state, but of a more open and vulgar nature, are deficient, and shall, therefore, in our manner, give specimens for supplying them.

The art of government includes the political offices; viz., 1, the preservation; 2, the happiness; and 3, the enlargement of a state. The two former have, in good measure, been excellently treated by some;[1] but there is nothing ex-

[1] For an account of these authors, see Morhof's "Polyhist." tom. iii. De Prudentiæ Civilis Scriptoribus; and "Stollii Introduct. in Hist. Literar." cap. v. De Prudentia Politica.

tant upon the last; which we, therefore, note as deficient, and propose the following sketch, by way of example, for supplying it, under the title of the Military Statesman, or the Doctrine of extending the Bounds of Empire.

THE MILITARY STATESMAN

OR A SPECIMEN OF THE DOCTRINE OF ENLARGING THE BOUNDS OF EMPIRE

The saying of Themistocles, if applied to himself, was indecent and haughty; but if meant in general, contains a very prudent observation, and as grave a censure. Being asked, at a feast, to touch a lute, he answered, "He could not fiddle; but he could raise a small village to a great city."[2] Which words, if taken in a political sense, excellently describe and distinguish two very different faculties in those who are at the helm of states. For upon an exact survey, we shall find some, though but very few, that, being raised to the council-board, the senate, or other public office, can enlarge a small state, or city, and yet have little skill in music; but many more, who, having a good hand upon the harp, or the lute, that is, at the trifles of a court, are so far from enlarging a state, that they rather seem designed by nature to overturn and ruin it, though ever so happy and flourishing. And, indeed, those base arts and tricks by which many counsellors and men of great place procure the favor of their sovereign, and a popular character, deserve no other name than a certain knack of fiddling; as being things more pleasing for the present, and more ornamental to the practitioner, than useful, and suited to enlarge the bounds, or increase the riches of the state, whereof they are ministers. Again, there are, doubtless, counsellors and governors, who, though equal to business, and of no contemptible abilities, may commodiously manage things so as to preserve them from manifest precipices and inconveniences, though they by no means have the creative power of building and extending an empire. But whatever the workmen be, let us regard the work itself; viz., what is to

[2] Plutarch, Tus. Quæst. b. i. 2.

be deemed the true extent of kingdoms and republics, and by what means this may be procured—a subject well deserving to lie continually before princes, for their diligent meditation; lest, by overrating their own strength, they should rashly engage in too difficult and vain enterprises, or, thinking too meanly of their power, submit to timorous and effeminate counsels.

The greatness of an empire, in point of bulk and territory, is subject to mensuration, and for its revenue, to calculation. The number of inhabitants may be known by valuation or tax, and the number and extent of cities and towns, by survey and maps; yet in all civil affairs there is not a thing more liable to error than the making a true and intrinsic estimate of the strength and riches of a state. The kingdom of heaven is compared, not to an acorn, or any large nut, but to a grain of mustard-seed; which, though one of the least grains, has in it a certain quick property, and native spirit, whereby it rises soon, and spreads itself wide: so some states of very large compass are little suited to extend their limits, or procure a wider command, while others of small dimension prove the foundations of the greatest monarchies.

Fortified towns, well-stored arsenals, noble breeds of war-horses, armed chariots, elephants, engines, all kinds of artillery, arms, and the like, are nothing more than a sheep in a lion's skin, unless the nation itself be, from its origin and temper, stout and warlike. Nor is number of troops itself of any great service, where the soldiers are weak and enervate: for, as Virgil well observes, "The wolf cares not how large the flock is."[3] The Persian army in the plains of Arbela, appeared to the eyes of the Macedonians as an immense ocean of people; insomuch that Alexander's leaders, being struck at the sight, counselled their general to fall upon them by night; but he replied, "I will not steal the victory";[4] and it was found an easier conquest than he expected. Tigranes, encamped upon a

[3] Eclog. vii. 52.

[4] Quintus Curtius, iv. 15, and Plutarch.

hill, with an army of four hundred thousand men, seeing the Roman army, consisting but of fourteen thousand, making up to him, he jested at it, and said, "Those men are too many for an embassy, but much too few for a battle":[5] yet before sunset he found them enough to give him chase, with infinite slaughter. And we have abundant examples of the great inequality between number and strength. This, therefore, may be first set down as a sure and certain maxim, and the capital of all the rest, with regard to the greatness of a state, that the people be of a military race,[6] or both by origin and disposition warlike. The sinews of war are not money, if the sinews of men's arms be wanting, as they are in a soft and effeminate nation. It was a just answer of Solon to Crœsus, who showed him all his treasure: "Yes, sir, but if another should come with better iron than you, he would be master of all this gold."[7] And, therefore, all princes whose native subjects are not hardy and military, should make a very modest estimate of their power; as, on the other hand, those who rule a stout and martial people, may well enough know their own strength, if they be not otherwise wanting to themselves. As to hired forces, which is the usual remedy when native forces are wanting, there are numerous examples, which clearly show, that whatever state depends upon them, though it may perhaps for a time extend its feathers beyond its nest, yet they will mew soon after.

The blessing of Judah and Issachar can never meet; so that the same tribe, or nation, should be both the lion's whelp, and the ass under the burden:[8] nor can a people, overburdened with taxes, ever be strong and warlike. It is true, that taxes levied by public consent less dispirit and sink the minds of the subject than those imposed in absolute governments; as clearly appears by what is called excise in the Netherlands, and in some measure by the contributions called the subsidies in England. We are now speaking of

[5] Lucul.
[6] Machi. Discorso sopra Livio, lib. ii.
[7] Plut.
[8] Genesis xlix. 9, 14.

the minds, and not of the wealth of the people: for tributes by consent, though the same thing with tributes imposed, as to exhausting the riches of a kingdom, yet very differently affect the minds of the subject. So that this also must be a maxim of state, "That a people oppressed with taxes is unfit to rule."

States and kingdoms that aspire to greatness, must be very careful that their nobles and gentry increase not too much; otherwise, the common people will be dispirited, reduced to an abject state, and become little better than slaves to the nobility: as we see in coppices, if the staddles are left too numerous, there will never be clean underwood; but the greatest part degenerates into shrubs and bushes. So in nations, where the nobility is too numerous, the commonalty will be base and cowardly; and, at length, not one head in a hundred among them prove fit for a helmet, especially with regard to the infantry, which is generally the prime strength of an army. Whence, though a nation be full-peopled, its force may be small. We need no clearer proof of this than by comparing England and France. For though England be far inferior in extent and number of inhabitants, yet it has almost constantly got the better of France in war: for this reason, that the rustics, and lower sort of people in England, make better soldiers than the peasants of France. And in this respect it was a very political and deep foresight of Henry the Seventh of England, to constitute lesser settled farms, and houses of husbandry, with a certain fixed and inseparable proportion of land annexed, sufficient for a life of plenty: so that the proprietors themselves, or at least the renters, and not hirelings, might occupy them. For thus a nation may acquire that character which Virgil gives of ancient Italy: "A country strong in arms, and rich of soil"—

"Terra potens armis, atque ubere glebæ." [9]

We must not here pass over a sort of people, almost peculiar to England, viz., the servants of our nobles and gentry;

[9] Æneid, i. 531.

as the lowest of this kind are no way inferior to the yeomanry for foot service. And it is certain that the hospitable magnificence and splendor, the attendance and large train, in use among the nobility and gentry of England, add much to our military strength; as, on the other hand, a close retired life among the nobility causes a want of forces.

It must be earnestly endeavored, that the tree of monarchy, like the tree of Nebuchadnezzar, have its trunk sufficiently large and strong, to support its branches and leaves; or that the natives be sufficient to keep the foreign subjects under: whence those states best consult their greatness, which are liberal of naturalization. For it were vain to think a handful of men, how excellent soever in spirit and counsel, should hold large and spacious countries under the yoke of empire. This, indeed, might perhaps be done for a season, but it cannot be lasting. The Spartans were reserved and difficult in receiving foreigners among them; and, therefore, so long as they ruled within their own narrow bounds, their affairs stood firm and strong; but soon after they began to widen their borders, and extend their dominion further than the Spartan race could well command the foreign crowd, their power sunk of a sudden. Never did commonwealth receive new citizens so profusely as the Roman; whence its fortune was equal to so prudent a conduct: and thus the Romans acquired the most extensive empire on the globe. It was their custom to give a speedy denization, and in the highest degree; that is, not only a right of commerce, of marriage and inheritance, but also the right of suffrage, and of candidature for places and honors.[10] And this not only to particular persons; but they conferred it upon entire families, cities, and sometimes whole nations at once. Add to this their custom of settling colonies, whereby Roman roots were transplanted in foreign soil. And to consider these two practices together, it might be said, that the Romans did not spread themselves over the globe, but that the globe spread itself over the Romans:

[10] Cic. pro L. C. Bal.

which is the securest method of extending an empire. I have often wondered how the Spanish government could with so few natives inclose and curb so many kingdoms and provinces. But Spain may be esteemed a sufficiently large trunk, as it contains a much greater tract of country than either Rome or Sparta did at first. And although the Spaniards are very sparing of naturalization, yet they do what comes next to it: promiscuously receive the subjects of all nations into their army; and even their highest military office is often conferred upon foreign leaders. Nay, it appears that Spain at length begins to feel their want of natives, and are now endeavoring to supply it.

It is certain, that the sedentary mechanic arts, practiced within doors, and the more curious manufactures, which require the finger rather than the arm, are in their own nature opposite to a military spirit. Men of the sword universally delight in exemption from work, and dread dangers less than labor. And in this temper they must be somewhat indulged, if we desire to keep their minds in vigor. It was, therefore, a great advantage to Sparta, Athens, Rome, and other ancient republics, that they had the use, not of freemen, but generally of slaves for this kind of domestic arts. But after the Christian religion gained ground, the use of slaves was in great measure abolished. What comes nearest this custom is to leave such arts chiefly to strangers, who for that purpose should be invited to come in, or at least be easily admitted. The native vulgar should consist of three kinds; viz., husbandmen, free servants, and handicraftsmen, used to the strong masculine arts; such as smithery, masonry, carpentry, etc., without including the soldiery.

But above all, it is most conducive to the greatness of empire, for a nation to profess the skill of arms as its principal glory and most honorable employ; for the things hitherto spoken of are but preparatory to the use of arms; and to what end this preparation, if the thing itself be not reduced to action? Romulus, as the story goes, left it in charge to his people at his death, that of all things they

should cultivate the art of war, as that which would make their city the head of the world."[11] The whole frame and structure of the Spartan government tended, with more diligence, indeed, than prudence, only to make its inhabitants warriors. Such was also the practice of the Persians and Macedonians, though not so constant and lasting. The Britons, Gauls, Germans, Goths, Saxons, and Normans, for some time also principally cultivated military arts. The Turks did the same, being not a little excited thereto by their law, and still continue the discipline, notwithstanding their soldiery be now on its incline. Of all Christian Europe, the only nation that still retains and professes this discipline is the Spanish. But it is so plain, that every one advances furthest in what he studies most, as to require no enforcing. It is sufficient to intimate, that unless a nation professedly studies and practices arms and military discipline, so as to make them a principal business, it must not expect that any remarkable greatness of empire will come of its own accord. On the contrary, it is the most certain oracle of time, that those nations which have longest continued in the study and profession of arms, as the Romans and the Turks have principally done, make the most surprising progress in enlarging the bounds of empire. And again, those nations which have flourished, though but for a single age, in military glory, yet during that time have obtained such a greatness of empire as has remained with them long after, when their martial discipline was slackened.

It bears some relation to the foregoing precept, that "a state should have such laws and customs as may readily administer just causes, or at least pretexts, of taking arms." For there is such a natural notion of justice imprinted in men's minds, that they will not make war, which is attended with so many calamities, unless for some weighty or at least some specious reason. The Turks are never unprovided of a cause of war, viz., the propagation of their law and religion. The Romans, though it was a high degree of honor for

[11] Livy, v. 37.

their emperors to extend the borders of their empire, yet never undertook a war for that sole end. Let it, therefore, be a rule to all nations that aim at empire, to have a quick and lively sensibility of any injury done to their frontier subjects, merchants, or public ministers. And let them not sit too long quiet after the first provocation. Let them also be ready and cheerful in sending auxiliaries to their friends and allies, which the Romans constantly observed, insomuch that if an invasion were made upon any of their allies, who also had a defensive league with others, and the former begged assistance severally, the Romans would ever be the first to give it, and not suffer the honor of the benefit to be snatched from them by others. As for the wars anciently waged from a certain conformity or tacit correspondence of states, I cannot see on what law they stood. Such were the wars undertaken by the Romans for restoring liberty to Greece; such were those of the Lacedæmonians and Athenians, for establishing or overturning democracies or oligarchies; and such sometimes are those entered into by republics or kingdoms, under pretext of protecting the subjects of other nations, or delivering them from tyranny. It may suffice for the present purpose, that no state expect any greatness of empire, unless it be immediately ready to seize any just occasion of a war.

No one body, whether natural or political, can preserve its health without exercise; and honorable war is the wholesome exercise of a kingdom or commonwealth. Civil wars, indeed, are like the heat of a fever, but a war abroad is like the heat of motion—wholesome; for men's minds are enervated and their manners corrupted by sluggish and inactive peace. And, however it may be as to the happiness of a state, it is doubtless best for its greatness to be as it were always in arms. A veteran army, indeed, kept constantly ready for marching, is expensive, yet it gives a state the disposal of things among its neighbors, or at least procures it a great reputation in other respects, as may be clearly seen in the Spaniard, who has now, for a long succession of years,

kept a standing army, though not always in the same part of the country.

The dominion of the sea is an epitome of monarchy. Cicero, in a letter to Atticus, writing of Pompey's preparation against Cæsar, says, the designs of Pompey are like those of Themistocles; for he thinks they who command the sea command the empire.[12] And doubtless Pompey would have wearied Cæsar out, and brought him under, had he not, through a vain confidence, abandoned his design. It is plain, from many examples, of how great consequence sea-fights are. The fight at Actium decided the empire of the world; the fight of Lepanto struck a hook in the nose of the Turk; and it has frequently happened that victories or defeats at sea have put a final end to the war, that is, when the whole fortune of it has been committed to them. Doubtless the being master of the sea leaves a nation at great liberty to act, and to take as much or as little of the war as it pleases, while those who are superior in land forces have yet numerous difficulties to struggle with. And at present, among the European nations, a naval strength, which is the portion of Great Britain, is more than ever of the greatest importance to sovereignty, as well because most of the kingdoms of Europe are not continents, but in good measure surrounded by the sea, as because the treasures of both Indies seem but an accessory to the dominion of the seas.

The wars of later times seem to have been waged in the dark, compared with the variety of glory and honor usually reflected upon the military men of former ages. It is true, we have at this day certain military honors designed perhaps as incentives to courage, though common to men of the gown as well as the sword; we have also some coats-of-arms and public hospitals, for soldiers worn out and disabled in the service; but among the ancients, when a victory was obtained, there were trophies, funeral orations, and magnificent monuments for such as died in the wars. Civic crowns and military garlands were bestowed upon all the soldiers.

[12] B. 10, ep. 8.

The very name of emperor was afterward borrowed by the greatest kings from leaders in the wars; they had solemn triumphs for their successful generals; they had donatives and great largesses for the soldiers, when the army was disbanded; these are such great and dazzling things in the eyes of mortals, as to be capable of firing the most frozen spirits and inflaming them for war. In particular, the manner of triumph among the Romans was not a thing of pageantry or empty show, but deserving to be reckoned among the wisest and most noble of their customs, as being attended with these three particulars; viz., 1. The glory and honor of their leaders; 2. The enriching of the treasury with the spoils; and, 3. Donatives to the army. But their triumphal honors were, perhaps, unfit for monarchies, unless in the person of the king or his son, which also obtained at Rome in the times of its emperors, who reserved the honor of the triumph as peculiar to themselves and their sons upon returning from the wars whereat they were present, and had brought to a conclusion, only conferring their vestments and triumphal ensigns upon the other leaders

But to conclude, though no man, as the Scripture testifies, can by taking care add one cubit to his stature,[13] that is, in the little model of the human body; yet in the vast fabric of kingdoms and commonwealths, it is in the power of kings and rulers to extend and enlarge the bounds of empire; for by prudently introducing such laws, orders, and customs as those above mentioned, and the like, they might sow the seeds of greatness for posterity and future ages. But these counsels seldom reach the ears of princes, who generally commit the whole to the direction and disposal of fortune.

The other desideratum we note in the art of government, is the doctrine of universal justice, or the fountains of law. They who have hitherto written upon laws were either as philosophers or lawyers: the philosophers advance many things that appear beautiful in discourse, but lie out of the

[13] Matt. vi. 27, and Luke xii. 25.

road of use; while the lawyers, being bound and subject to the decrees of the laws prevailing in their several countries, whether Roman or pontifical, have not their judgment free, but write as in fetters. This doctrine, doubtless, properly belongs to statesmen, who best understand civil society, the good of the people, natural equity, the customs of nations, and the different forms of states; whence they are able to judge of laws by the principles and precepts, as well of natural justice as of politics. The present view, therefore, is to discover the fountains of justice and public good, and in all the parts of equity to give a certain character and idea of what is just, according whereto those who desire it may examine the laws of particular kingdoms and states, and thence endeavor to amend them. And of this doctrine we shall, in our usual way, give an example, aphoristically, in a single title.

A SPECIMEN OF THE METHOD OF TREATING UNIVERSAL JUSTICE, OR THE FOUNTAINS OF EQUITY [14]

Introduction

APHORISM I. Either law or force prevails in civil society. But there is some force that resembles law, and some law that resembles force more than justice; whence there are three fountains of injustice; viz., 1. Mere force; 2. Malicious insnaring under color of law; and 3. The severity of the law itself.

II. The ground of private right is this: He who does an injury receives profit or pleasure in the action, and incurs danger by the example; while others partake not with him in that profit or pleasure, but think the example concerns them; whence they easily agree to defend themselves by laws, lest each particular should be injured in his turn. But if it should happen, from the nature of the times, and a communion of guilt, that the greater or more powerful part

[14] Compare Morhof's "Polyhistor," tom. iii. lib. vi. De Jurisprudentiæ universalis Scriptoribus; "Struvii Bibliothec. Philosoph." cap. 6, 7, De Scriptoribus Politicis; and "Stollii Introduct. in Hist. Liter." p. 753, etc., De Jure Naturali.—*Ed.*

should be subject to danger, rather than defended from it by law, faction here disannuls the law; and this case frequently happens.

III. But private right lies under the protection of public laws; for law guards the people, and magistrates guard the laws. But the authority of the magistrate is derived from the majesty of the government, the form of the constitution, and its fundamental laws; whence, if the political constitution be just and right, the laws will be of excellent use; but if otherwise, of little security.

IV. Public law is not only the preserver of private right, so as to keep it unviolated and prevent injuries, but extends also to religion, arms, discipline, ornaments, wealth, and all things that regard the good of a state.

V. For the end and scope of laws, whereto all their decrees and sanctions ought to tend, is the happiness of the people; which is procurable—1, by rightly instructing them in piety, religion, and the duties of morality; 2, securing them by arms against foreign enemies; 3, guarding them by laws against faction and private injuries; 4, rendering them obedient to the government and magistracy; and, 5, thus causing them to flourish in strength and plenty. But laws are the instruments and sinews for procuring all this.

VI. The best laws, indeed, secure this good end, but many other laws fail of it; for laws differ surprisingly from one another, insomuch that some are—1, excellent; others, 2, of a middle nature; and 3, others again absolutely corrupt. We shall, therefore, here offer, according to the best of our judgment, certain laws, as it were, of laws;[15] from whence an information may be derived as to what is well or what is ill laid down, or established by particular laws.

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[15] As laying down the just foundations and rules of the law; for the law itself is governed by reason, justice and good sense. But perhaps these aphorisms of the author follow the particular law of England too close to be allowed by other nations for the foundations of universal justice, which is a very extensive subject. See "Struvii Bibliothec. Philosoph." cap. 8, De Scriptoribus Juris Naturæ et Gentium.—*Ed.*

VII. But before we proceed to the body of particular laws, we will briefly touch upon the excellences and dignities of laws in general. Now, that may be esteemed a good law which is—1, clear and certain in its sense; 2, just in its command; 3, commodious in the execution; 4, agreeable to the form of government; and, 5, productive of virtue in the subject.[16]

TITLE I

Of that primary dignity of the law, certainty

VIII. Certainty is so essential to a law, that a law without it cannot be just; for if the trumpet gives an uncertain sound, who shall prepare himself to the battle?[17] So if the law has an uncertain sense, who shall obey it? A law, therefore, ought to give warning before it strikes: and it is a true maxim, that the best law leaves least to the breast of the judge; which is effected by certainty.

IX. Laws have two uncertainties—the one where no law is prescribed, the other when a law is ambiguous and obscure; wherefore we must first speak of cases omitted by the law, that in these also may be found some rules of certainty.

Cases omitted in law

X. The narrowness of human prudence cannot foresee all the cases that time may produce. Whence new cases, and cases omitted, frequently turn up. And for these there are three remedies or supplies; viz., 1, by proceeding upon analogy; 2, by the use of precedents, though not yet brought into a law; and 3, by juries, which decree according to conscience and discretion, whether in the courts of equity or of common law.

Application and extension of laws

XI. 1. In cases omitted, the rule of law is to be deduced from similar cases, but with caution and judgment. And here the following rules are to be observed: Let reason be

[16] These are so many several titles, or general heads, laid down by the author, as if he intended a full treatise upon the subject; but he here only considers the first of them.—*Shaw.*

[17] I. Cor. xiv. 8.

esteemed a fruitful, and custom a barren thing, so as to breed no cases. And therefore what is received against the reason of a law, or where its reason is obscure, should not be drawn into precedents.

XII. A great public good must draw to itself all cases omitted; and therefore, when a law remarkably, and in an extraordinary manner, regards and procures the good of the public, let its interpretation be full and extensive.

XIII. It is a cruel thing to torture the laws, that they may torture men; whence penal laws, much less capital laws, should not be extended to new offences. But if the offence be old, and known to the law, and its prosecution fall upon a new case not provided for by law, the law must rather be forsaken than offences go unpunished.

XIV. Statutes that repeal the common law, especially in common and settled cases, should not be drawn by analogy to cases omitted; for when the republic has long been without an entire law, and that in express cases, there is little danger if cases omitted should wait their remedy from a new statute.

XV. It is enough for such statutes as were plainly temporary laws, enacted upon particular urgent occasions of state, to contain themselves within their proper cases after those occasions cease; for it were preposterous to extend them in any measure to cases omitted.

XVI. There is no precedent of a precedent; but extension should rest in immediate cases, otherwise it would gradually slide on to dissimilar cases, and so the wit of men prevail over the authority of laws.

XVII. In such laws and statutes as are concise, extension may be more freely allowed; but in those which express particular cases, it should be used more cautiously. For as exception strengthens the force of a law in unaccepted cases, so enumeration weakens it in cases not enumerated.

XVIII. An explanatory statute stops the current of a precedent statute; nor does either of them admit extension

afterward. Neither should the judge make a superextension where the law has once begun one.

XIX. The solemnity of forms and acts admits not of extension to similar cases: for it is losing the nature of solemnity to go from custom to opinion, and the introduction of new things takes from the majesty of the old.

XX. The extension of law is easy to after-cases, which had no existence at the time when the law was made: for where a case could not be described because not then in being, a case omitted is deemed a case expressed, if there be the same reason for it.

Precedents and the use of forms

XXI. 2. We come next to precedents; from which justice may be derived where the law is deficient, but reserving custom, which is a kind of law, and the precedents which, through frequent use, are passed into custom, as into a tacit law; we shall at present only speak of such precedents as happen but rarely, and have not acquired the force of a law, with a view to show how and with what caution a rule of justice may be derived from them when the law is defective.

XXII. Precedents are to be derived from good and moderate times, and not from such as are tyrannical, factious, or dissolute; for this latter kind are a spurious birth of time, and prove more prejudicial than instructive.

XXIII. Modern examples are to be held the safest. For why may not what was lately done, without any inconvenience be safely done again? Yet recent examples have the less authority; and, where things require a restoration, participate more of their own times than of right reason.

XXIV. Ancient precedents are to be received with caution and choice; for the course of time alters many things; so that what seems ancient, in time may, for disturbance and unsuitableness, be new at the present; and therefore the precedents of intermediate times are the best, or those of such times as have most agreement with the present, which ancient times may happen to have more than later.

XXV. Let the limits of a precedent be observed, and

rather kept within than exceeded; for where there is no rule of law, everything should be suspected: and therefore, as this is a dark road, we should not be hasty to follow.

XXVI. Beware of fragments and epitomes of examples, and rather consider the whole of the precedent with all its process; for if it be absurd to judge upon part of a law without understanding the whole, this should be much rather observed of precedents, the use whereof is precarious, without an evident correspondence.

XXVII. It is of great consequence through what hands the precedents pass, and by whom they have been allowed. For if they have obtained only among clerks and secretaries, by the course of the court, without any manifest knowledge of their superiors; or have prevailed among that source of errors, the populace, they are to be rejected or lightly esteemed. But if they come before senators, judges, or principal courts, so that of necessity they must have been strengthened, at least by the tacit approval of proper persons, their dignity is the greater.

XXVIII. More authority is to be allowed to those examples which, though less used, have been published and thoroughly canvassed; but less to those that have lain buried and forgotten in the closet or archives: for examples, like waters, are wholesomest in the running stream.

XXIX. Precedents in law should not be derived from history, but from public acts and accurate traditions; for it is a certain infelicity, even among the best historians, that they dwell not sufficiently upon laws and judicial proceedings; or if they happen to have some regard thereto, yet their accounts are far from being authentic.

XXX. An example rejected in the same, or next succeeding age, should not easily be received again when the same case recurs; for it makes not so much in its favor that men sometimes used it, as in its disfavor that they dropped it upon experience.

XXXI. Examples are things of direction and advice, not rules or orders, and therefore should be so managed as to

bend the authority of former times to the service of the present.

Prætorian and censorian courts

XXXII. 3. There should be both courts and juries, to judge according to conscience and discretion, where the rule of the law is defective; for laws, as we before observed, cannot provide against all cases, but are suited only to such as frequently happen: time, the wisest of all things, daily introducing new cases.

XXXIII. But new cases happen both in criminal matters, which require punishment; and in civil causes, which require relief. The courts that regard the former, we call censorial, or courts of justice; and those that regard the latter, prætorial, or courts of equity.

XXXIV. The courts of justice should have jurisdiction and power, not only to punish new offences, but also to increase the penalties appointed by the laws for old ones, where the cases are flagrant and notorious, yet not capital; for every enormous crime may be esteemed a new one.

XXXV. In like manner, the courts of equity should have power as well to abate the rigor of the law as to supply its defects; for if a remedy be afforded to a person neglected by the law, much more to him who is hurt by the law.

XXXVI. Both the censorial and prætorial courts should absolutely confine themselves to enormous and extraordinary cases, without invading the ordinary jurisdictions; lest otherwise the law should rather be supplanted than supplied.

XXXVII. These jurisdictions should reside only in supreme courts, and not be communicated to the lower; for the power of supplying, extending, or moderating the laws, differs but little from a power of making them.

XXXVIII. These courts of jurisdiction should not be committed to a single person, but consist of several; and let not their verdict be given in silence, but let the judges produce the reasons of their sentence openly and in full audience of the court; so that what is free in power may yet be limited by regard to fame and reputation.

XXXIX. Let there be no records of blood, nor sentence of capital crimes, passed in any court, but upon known and certain laws: God himself first pronounced, and afterward inflicted death. Nor should a man lose his life without first knowing that he had forfeited it.

XL. In the courts of justice, let there be three returns of the jury, that the judges may not only lie under no necessity of absolving or condemning, but also have a liberty of pronouncing the case not clear. And let there be, besides penalty, a note of infamy or punishment by way of admonishing others, and chastising delinquents, as it were, by putting them to the blush with shame and scandal.

XLI. In courts of justice, let the first overtures and intermediate parts of all great offences be punished, though the end were not accomplished. And this should be the principal use of such courts; for it is the part of discipline to punish the first buddings of offences; and the part of clemency, to punish the intermediate actions, and prevent their taking effect.

XLII. Great regard must be had in courts of equity, not to afford relief in those cases which the law has not so much omitted as despised for their levity, or, for their odiousness, judged unworthy of a remedy.

XLIII. But above all, it is of the greatest moment to the certainty of the laws we now speak of, that courts of equity keep from swelling and overflowing, lest, under pretence of mitigating the rigor of the law, they should cut its sinews and weaken its strength by wresting all things to their own disposal.

XLIV. No court of equity should have a right of decreeing against a statute, under any pretext of equity whatever; otherwise the judge would become the legislator, and have all things dependent upon his will.

XLV. Some conceive the jurisdiction which decrees according to equity and conscience, and that which proceeds according to strict justice, should be deputed to the same courts, while others would have them kept distinct; which

seems much the better way. There will be no distinction of cases where there is a mixture of jurisdictions; but arbitration will at length supersede the law.

XLVI. The use of the prætor's table stood upon a good foundation among the Romans, as that wherein he set down and published in what manner he would administer justice. According to which example, the judges in courts of equity should propose to themselves some certain rules to go by, and fix them up to public view: for as that law is ever the best, which leaves least to the breast of the judge; so is that judge the best, who leaves least to himself.[18]

Retrospect and relation of laws

XLVII. There is also another way of supplying cases omitted; viz., when one law is made upon another, and brings the cases omitted along with it. This happens in those laws or statutes, which, according to the common phrase, look backward. But laws of this kind are to be seldom used, and with great caution; for a Janus-face is not to be admired in the law.

XLVIII. He who captiously and fraudulently eludes and circumscribes the words or intention of a law, deserves to be hampered by a subsequent law. Whence, in fraudulent and evasive cases, it is just for laws to carry a retrospection, and prove of mutual assistance to each other; so that he who invents loopholes and plots the subversion of present laws, may at least be awed by future.

XLIX. Such laws as strengthen and confirm the true intentions of acts and instruments against the defects of forms and solemnities, very justly include past actions; for the principal fault of a retrospective law is, its causing disturbance; but these confirming laws regard the peace and settlement of transactions. Care, however, must be had not to disturb things once adjudged.

L. It should be carefully observed, that not only such laws as look back to what is past invalidate former transac-

[18] The author made a speech to this effect, upon receiving the seal and taking his place in Chancery.

tions, but such also as prohibit and restrain things future, which are necessarily connected with things past: so, if any law should prohibit certain artificers the sale of their wares in future, this law, though it speaks for hereafter, yet operates upon times past, though such artificers had then no other lawful means of subsisting.

LI. All declaratory laws, though they make no mention of time past, yet are, by the very declaration itself, entirely to regard past matters; for the interpretation does not begin with the declaration, but, as it were, is made contemporary with the law itself. And therefore declaratory laws should not be enacted, except in cases where the law may be retrospected with justice. And so much for the uncertainty of laws, where the law is extant. We proceed to the other part, where the laws, though extant, are perplexed and obscure.

Obscurity of laws

LII. The obscurity of laws has four sources; viz., 1. An accumulation of laws, especially if mixed with such as are obsolete. 2. An ambiguous description, or want of clear and distinct delivery. 3. A neglect or failure in instituting the method of interpreting justice. 4. And lastly, a clashing and uncertainty of judgments.

Excessive accumulation of laws

LIII. The prophet says, "It shall rain snares upon them": [19] but there are no worse snares than the snares of laws, especially the penal, which, growing excessive in number, and useless through time, prove not a lantern, but nets to the feet.

LIV. There are two ways in use of making new statutes; the one confirms and strengthens the former statutes in the like cases, at the same time adding or altering some particulars; the other abrogates and cancels all that was enacted before, and instead thereof, substitutes a new uniform law. And the latter method is the best: for in the former the decrees become complicate and perplexed, and though the

[19] Psal. x. 7.

business be performed, yet the body of laws in the meantime becomes corrupt; but in the latter, greater diligence must be used when the law itself comes to be weighed anew, and what was before enacted to be reconsidered antecedent to its passing; by which means the future agreement and harmony of the laws is well consulted.

LV. It was in use among the Athenians for six persons annually to examine the contradictory titles of their laws, and propose to the people such of them as could not be reconciled, that some certain resolution might be taken about them. According to which example, the legislators of every state should once in three or five years, as it shall seem proper, take a review of these contrarieties in law; but let them first be inspected and prepared by committees appointed for the purpose, and then brought in for the general assembly to fix and establish what shall be approved by vote.

LVI. But let not an overdiligent and scrupulous care be used in reconciling the contradictory titles of laws, by subtile and far-fetched distinctions; for this is the weaving of the wit; and whatever appearance it may have of modesty and reverence, it is to be deemed prejudicial, as rendering the whole body of the laws dissimilar and incoherent. It were, therefore, much better to suppress the worst, and suffer the best to stand alone.

LVII. Obsolete laws, that are grown into disuse, should in the same manner be cancelled. For as an express statute is not regularly abrogated by disuse, it happens that, from a contempt of such as are obsolete, the others also lose part of their authority; whence follows that torture of Mezentius, whereby the living laws are killed in the embraces of the dead ones. But above all things a gangrene in the laws is to be prevented.

LVIII. And let courts of equity have a right of decreeing contrary to obsolete laws and statutes not newly enacted; for although, as is well observed, nobody should be wiser than the laws, yet this should be understood of the laws

when they are awake, and not when they sleep. But let it be the privilege, not of judges in the courts of equity, but of kings, solemn councils, and the higher powers, to overrule later statutes found prejudicial to public justice, and to suspend the execution thereof by edicts or public acts, till those meetings are held which have the true power of repealing them, lest otherwise the safety of the people should be endangered.

New digests of laws

LIX. But if laws heaped upon laws shall swell to such a vast bulk, and labor under such confusion as renders it expedient to treat them anew, and reduce them into one sound and serviceable corps, it becomes a work of the utmost importance, deserving to be deemed heroical, and let the authors of it be ranked among legislators, and the restorers of states and empires.

LX. Such an expurgation and new digest of laws is to be effected by five particulars; viz., 1. By omitting all the obsolete laws, which Justinian calls ancient fables; 2. By receiving the most approved contradictories, and abolishing the rest; 3. By expunging laws of the same purport, and retaining only one, or the most perfect; 4. By throwing out such laws as determine nothing—only propose questions, and leave them undecided; 5. And lastly, by contracting and abridging those that are too verbose and prolix.

LXI. And it would be very useful in such a new digest, separately to range and bring together all those laws received for common law which have a kind of immemorial origin, and on the other side the statutes superadded from time to time; because in numerous particulars in the practice of the law, the interpretation and administration of the common law differs from the statute law. And this method was observed by Trebonianus in his digest and code.

LXII. But in such a second birth of the law, and such a recompilement of the ancient books and laws, the very words and text of the law itself should be retained; and though it were necessary to collect them by fragments and small por-

tions, they may afterward be regularly wove together. For allowing it might perhaps be more commodious, and, with regard to the true reason of the thing, better, to do it by a new text than by such kind of patchwork, yet in the law, style and description are not so much to be regarded as authority, and its patron antiquity; otherwise this might rather seem a work of mere scholarship and method than a corps of majestic laws.

LXIII. 'Twere advisable, in making this new digest, not utterly to abolish the ancient volumes, and give them up to oblivion, but suffer them at least to remain in some library, though with a prohibition of their common use; because in weighty cases it might be proper to consult and inspect the revolutions and series of ancient laws. 'Tis also a solemn thing to intermix antiquity with things present. And such a new body of laws ought to receive the sanction of all those who have any legislative power in the state, lest under a pretence of digesting the old laws new ones should be secretly obtruded.

LXIV. 'Twere to be wished that such a recompilement of the laws might be undertaken in such times as excel the ancient (whose acts and works they model anew) in point of learning and universal knowledge; the contrary whereof happened in the work of Justinian. For 'tis an unfortunate thing to have the works of the ancients mangled, and set together again at the discretion and choice of a less prudent and less learned age. But it often happens that what is necessary is not best.

Obscure and involved exposition of laws

LXV. Laws are obscurely described either—1, through their loquacity and superfluity of words; 2, through over-conciseness; or, 3, through their preambles contradicting the body of the law.

LXVI. We at present treat of the obscurity which arises from their ill description, and approve not the loquacity and prolixity now used in drawing up the laws, which in no degree obtains what is intended by it, but rather the con-

trary; for while it endeavors to comprehend and express all particular cases in apposite and proper diction (as expecting greater certainty from thence), it raises numerous questions about terms, which renders the true and real design of the law more difficult to come at through a huddle of words.

LXVII. Nor yet can we approve of a too concise and affected brevity, used for the sake of majesty and authority, especially in this age; lest the laws should become like the Lesbian rule.[20] A mediocrity, therefore, is to be observed, and a well-defined generality of words to be found, which though it does not accurately explain the cases it comprehends, yet clearly excludes those it does not comprehend.

LXVIII. Yet in the ordinary politic laws and edicts, where lawyers are seldom consulted, but the politicians trust to their own judgment, things ought to be largely explained and pointed out to the capacity of the vulgar.

LXIX. Nor do we approve of tedious preambles at the head of laws: they were anciently held impertinent, as introducing laws in the way of dispute, not in the way of command. But as we do not suit ourselves to the manners of the ancients, these prefaces are now generally used of necessity, not only as explanations, but as persuasives to the passing of the law in the assemblies of states, and likewise to satisfy the people; yet as much as possible let preambles be avoided, and the law begin with commanding.

LXX. Though the intent and mind of the law may be sometimes drawn from these preambles, yet its latitude and extent should by no means be derived from them; for the preamble frequently fixes upon a few of the more plausible and specious particulars, by way of example, while the law itself contains many more; or on the contrary, the law restrains and limits many things, the reason whereof it were not necessary to insert in the preamble; wherefore the ex-

[20] The Lesbians are said to have made their rules from their buildings; so that if the buildings were erroneous, the rules they worked by became so, too, and thus propagated the error: so if the laws were written concise, as if drawn up in perfect times, or with an affectation of a sententious or majestic brevity, they might propagate errors, instead of correcting them.

tent of the law is to be derived from the body of the law, the preamble often exceeding or falling short of this extent.

LXXI. There is one very faulty method of drawing up the laws, viz., when the case is largely set forth in the preamble, and then by the force of the word *which*, or some such relative, the body of the law is reflected back upon the preamble, and the preamble inserted and incorporated in the body of the law; whence proceed both obscurity and danger, because the same care is not usually employed in weighing and examining the words of the preamble, as the words of the law itself.

Different methods of expounding laws and solving doubts

LXXII. There are five ways of interpreting the law, and making it clear; viz., 1, by recording of judgments; 2, by instituting authentic writers; 3, by auxiliary books; 4, by readings; and, 5, by the answers or counsel of qualified persons. A due use of all these affords a great and ready assistance in clearing the laws of their obscurity.

Reports of judgments

LXXIII. And above all, let the judgments of the supreme and principal courts be diligently and faithfully recorded, especially in weighty causes, and particularly such as are doubtful, or attended with difficulty or novelty. For judgments are the anchors of the laws, as laws are the anchors of states.

LXXIV. And let this be the method of taking them down—1. Write the case precisely, and the judgments exactly, at length; 2. Add the reasons alleged by the judges for their judgment; 3. Mix not the authority of cases, brought by way of example, with the principal case; 4. And for the pleadings, unless they contain anything very extraordinary, omit them.

LXXV. Let those who take down these judgments be of the most learned counsel in the law, and have a liberal stipend allowed them by the public. But let not the judges meddle in these reports, lest, favoring their own opinions

too much, or relying upon their own authority, they exceed the bounds of a recorder.

LXXVI. Let these judgments be digested in the order of time, and not in method and titles; for such writings are a kind of histories or narratives of the laws; and not only the acts themselves, but also their times, afford light to a prudent judge.

Authentic writers

LXXVII. Let a body of law be wholly compiled, 1, of the laws that constitute the common law; 2, of the statutes; and, 3, of the judgments on record: and besides these, let nothing be deemed authentic, or else be sparingly received.

LXXVIII. Nothing conduces more to the certainty of laws, whereof we now speak, than that the authentic writings should be kept within moderate bounds; and that vast multitude of authors and learned men in the law excluded, which otherwise rend the mind of the laws, distract the judge, make lawsuits endless: and the lawyer himself, finding it impossible to peruse and digest so many books, hence takes up with compendiums. Perhaps some good glossary, a few of the exactest writers, or rather a very few portions of a few authors, might be usefully received for authentic. But let the books be still reserved in libraries, for the judges and counsel to inspect occasionally, without permitting them to be cited in pleading at the bar, or suffering them to pass into authority.

Auxiliary writings

LXXIX. But let not the knowledge and practice of the law want its auxiliary books, which are of six kinds; viz., I. Institutes; 2. Explanations of words; 3. The rules of law; 4. The antiquities of law; 5. Summaries or abridgments; and 6. Forms of pleading.

LXXX. Students are to be trained up to the knowledge and higher parts of the law by institutes, which should be written in a clear method. Let the whole of private right, of the laws of Meum and Tuum, be gone over in these elements, not omitting some things and dwelling too much

upon others, but giving a little taste of all, that when the student comes to peruse the corps of the law, he may meet with nothing entirely new, or without having received some previous notion thereof. But the public law is not to be touched in these institutes, this being to be drawn from the fountains themselves.

LXXXI. Let a commentary be made of the terms of the law, without endeavoring too curiously and laboriously to give their full sense and explanation; the purport hereof being not to search the exact definitions of terms, but to afford such explanations only as may open an easy way to reading the books of the law. And let not this treatise be digested alphabetically—rather leave that to the index; but place all those words together which relate to the same thing, so that one may help to the understanding of another.

LXXXII. It principally conduces to the certainty of laws, to have a just and exact treatise of the different rules of law; a work deserving the diligence of the most ingenious and prudent lawyers; for we are not satisfied with what is already extant of this kind. Not only the known and common rules are to be here collected, but others also, more subtile and latent, which may be drawn from the harmony of laws and adjudged cases; such as are sometimes found in the best records. And these rules or maxims are general dictates of reason running through the different matters of law, and make, as it were, its ballast.

LXXXIII. But let not the positions or placets of law be taken for rules, as they usually are, very injudiciously; for if this were received, there would be as many rules as there are laws: a law being no other than a commanding rule. But let those be held for rules which cleave to the very form of justice; whence in general the same rules are found through the civil law of different states, unless they sometimes vary with regard to the form of government.

LXXXIV. After the rule is laid down in a short and solid expression, let examples and clear decisions of cases

be subjoined by way of explanation; distinctions and exceptions by way of limitation; and things of the same kind by way of amplification to the rule.

LXXXV. It is justly directed not to take laws from rules, but to make the rules from the laws in being: neither must the proof be derived from the words of the rule, as if that were the text of the law; for the rule, like the magnetic needle, does not make, but indicate the law.

LXXXVI. Besides the body of the law, it is proper to take a view of the antiquities of laws, which, though they have lost their authority, still retain their reverence. Those writings upon laws and judgments, whether published or unpublished, are to be held for antiquities of law, which preceded the body of the laws in point of time; for these antiquities should not be lost, but the most useful of them being collected, and such as are frivolous and impertinent rejected, they should be brought into one volume without mixing ancient fables, as Treboninaus calls them, with the laws themselves.

LXXXVII. But for practice, 'tis highly proper to have the whole law orderly digested under heads and titles, whereto any one may occasionally turn on a sudden, as to a storehouse furnished for present use. These summaries bring into order what lay dispersed, and abridge what was diffusive and prolix in the law. But care must be had lest these abridgments should make men ready for practice, and indolent in the science itself; for their office is to serve but as remembrancers, and not as perfect teachers of the law. And they are to be made with great diligence, fidelity, and judgment, that they may fairly represent, and not steal from the laws.

LXXXVIII. Let different forms of pleading be collected in every kind, for this tends to practice; and doubtless they lay open the oracles and mysteries of the law, which conceals many such. And these are better and more fully displayed in forms of pleading than otherwise, as the hand is better seen when opened.

Answers and consultations

LXXXIX. Some method ought to be taken for solving and putting an end to particular doubts which arise from time to time; for it is a hard thing, if they who desire to keep clear of error, should find no one to set them right, but that their actions must be still endangered, without any means of knowing the law, before the case is determined.

XC. But we approve not that the answers of prudent men, whether counsellors or professors of law, given to such as ask their advice, should have so great authority, as that the judge might not lawfully depart from their opinion. Let points of law be taken from sworn judges.

XCI. We approve not that judgments should be tried by feigned cases and persons, with a view to predetermine what will be the rule of law; for this dishonors the majesty of laws, and should be judged as a prevarication. Besides, 'tis monstrous for judgments to copy the stage.

XCII. Therefore let as well judgments as answers and advice proceed from none but the judges, the former in suits depending, and the latter in the way of opinion upon difficult points of law. But these notices, whether in private or public affairs, are not to be expected from the judges themselves, for that were to make the judge a pleader; but from the prince or state: and let them recommend it to the judges, who, invested with such authority, are to hear the arguments on both sides, and the pleadings of the counsel employed either by those whom it concerns, or appointed by the judges themselves if necessary; and after the matter is weighed, let the judges declare the law, and give their opinion; and such kind of opinions should be recorded and published among judged cases, and be reckoned of equal authority with them.

Prelections

XCIII. Let the readings upon the law, and the exercises of such as study it, be so instituted and ordered, that all things may tend to the resolving and putting an end, and not to the raising and maintaining of questions and controversies in the law. But at present a school seems every-

where opened for multiplying disputes, wranglings, and altercations about the laws, in the way of showing the wit of the disputants; though this is also an ancient evil, for it was esteemed a piece of glory of old to support numerous questions of law, as it were by sects and fashions, rather than to end them. But this ought to be prevented.

Instability of judgments

XCIV. Judgments prove uncertain, either, 1, through an untimely and hasty passing of sentence; 2, the emulation of courts; 3, a wrong and unskilful recording of judgments; or, 4, through a too easy and ready way opened for their reversion. Therefore let care be taken, 1, that judgments proceed upon mature deliberation; 2, that courts preserve a due reverence for each other; 3, that judgments be faithfully and prudently recorded; and, 4, that the way for reversing of judgments be made narrow, craggy, and thorny.

XCV. If judgment be given upon a case in any principal court, and a like case come into another court, proceed not to judgment before a consultation be held in some considerable assembly of the judges. For if decrees are of necessity to be cut off, at least let them be honorably interred.

XCVI. For courts to quarrel and contend about jurisdiction is a piece of human frailty, and the more, because of a childish opinion, that it is the duty of a good and able judge to enlarge the jurisdiction of his court; whence this disorder is increased, and the spur made use of instead of the bridle. But that courts, through this heat of contention should on all sides uncontrollably reverse each other's decrees which belong not to jurisdiction, is an intolerable evil, and by all means to be suppressed by kings, the senate, or the government. For it is a most pernicious example that courts, which make peace among the subjects, should quarrel among themselves.

XCVII. Let not too easy a passage be opened for the repealing of sentence by appeal, writ of error, rehearing, etc. Some are of opinion, that a cause should be removed to a higher court as a new cause, and the judgment given

upon it in the lower be entirely laid aside and suspended; while others again would have the judgment remain in its force, and only the execution to be stopped. We approve of neither, unless the court where the sentence passed were of a very inferior nature; but would rather have both the judgment stand and its execution proceed, provided a caveat be put in by the defendant for costs and damages if the sentence should be reversed.

Let this title, of the certainty of laws, serve for a specimen of that digest we propose, and have in hand.[21] And thus we conclude the head of civil doctrine, and with it human philosophy; as with human philosophy, philosophy in general.

And now standing still to breathe, and look back upon the way we have passed, we seem all along to have been but tuning and trying the instruments of the Muses, for a concert to be played upon them by other hands; or to have been grating men's ears, that they may have the better music hereafter. And indeed, when I set before me the present state of the times, wherein learning makes her third visit to mankind;[22] and carefully reflect how well she finds us prepared and furnished with all kinds of helps, the sublimity and penetration of many geniuses of the age, those excellent monuments of the ancient writings which shine as so many great lights before us; the art of printing, which largely supplies men of all fortunes with books; the open traffic of the globe,[23] both by sea and land, whence we receive numerous experiments, unknown to former ages, and a large accession to the mass of natural history; the leisure which the greatest minds in the kingdoms and provinces of Europe everywhere enjoy, as being less immersed in business than the ancient Greeks, by reason of their populous states; or the Romans,

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[21] Though the design itself was not executed by the author, some progress was made in the history of the nature, use and proceedings of the laws of England.—*Shaw.*

[22] Alluding only to the two famous ones, among the Greeks and Romans.

[23] He might have added the discovery of a new world.—*Ed.*

through the extensiveness of their empire; the peace at present spread over Britain, Spain, Italy, France, and many other countries; the exhaustion of all that can be invented or said in religious controversies,[24] which have so long diverted many of the best geniuses from the study of other arts; the uncommon learning of his present Britannic Majesty, about whom, as about a phœnix, the fine geniuses flock from all quarters; and lastly, the inseparable property of time, which is daily to disclose truth: when all these things, I say, are considered by us, we cannot but be raised into a persuasion that this third period of learning may far exceed the two former of the Greeks and Romans, provided only that men would well and prudently understand their own powers and the defects thereof; receive from each other the lamps of invention, and not the firebrands of contradiction; and esteem the search after truth as a certain noble enterprise, not a thing of delight or ornament, and bestow their wealth and magnificence upon matters of real worth and excellence, not upon such as are vulgar and obvious. As to my own labors, if any one shall please himself or others in reprehending them, let him do it to the full, provided he observe the ancient request, and weigh and consider what he says—"Verbera, sed audi." [25] And certainly the appeal is just, though the thing perhaps may not require it, from men's first thoughts to their second, and from the present age to posterity.

We come, lastly, to that science which the two former periods of time were not blessed with; viz., sacred and inspired theology: the sabbath of all our labors and peregrinations.

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[24] This is spoken like one who was versed in ecclesiastical history and polemical divinity; for scarce any religious dispute is now raised, that has not been previously contested; but many have found the art, by heat and warmth, to revive old doctrines, opinions and heresies, and pass them upon the crowd for new; rekindling the firebrands of their ancestors, as if religious controversies were to be entailed upon mankind, and descend from one generation to another.—*Ed.*

[25] Themistocles to Eurybiades. Plut. Reg. et Imper. Apop.

NINTH BOOK

The Compartments of Theology omitted. Three Deficiencies pointed out. The Right Use of Reason in Matters of Faith. The Knowledge of the Degrees of Unity in the City of God. The Emanations of the Holy Scriptures

HAVING now, excellent King, with our small bark of knowledge, sailed over, and surrounded the globe of the sciences, as well the old world as the new (let posterity judge with what success), we should pay our vows and conclude; did there not still remain another part to be viewed; viz., sacred or inspired theology. But if we were disposed to survey it, we must quit the small vessel of human reason and put ourselves on board the ship of the church, which alone possesses the divine needle for justly shaping the course. Nor will the stars of philosophy, that have hitherto principally lent their light, be of further service to us; and, therefore, it were not improper to be silent, also, upon this subject, as well as upon that of government. For which reason, we will omit the just distribution of it, and only contribute, according to our slender ability, a few particulars in the way of good wishes. And this we do the rather, because we find no tract in the whole region of divinity, that is absolutely deserted or uncultivated: so great has the diligence of men been, in sowing either wheat or tares. We shall, therefore, only propose three appendages of theology; treating not of the matter already formed, or to be formed by divinity, but only of the manner of forming it. Neither will we here, as we have hitherto practiced, give any sketches, annex any specimens, or lay down any precepts for these treatises; but leave all this to divines.

The prerogative of God extends over the whole man, and reaches both to his will and his reason; so that man must absolutely renounce himself, and submit to God: and therefore, as we are obliged to obey the divine law, though our will murmur against it, so are we obliged to believe the word of God, though our reason be shocked at it. For if we should believe only such things as are agreeable to our reason, we assent to the matter, and not to the author; which is no more than we do to a suspected witness. But the faith imputed to Abraham for righteousness consisted in a particular, laughed at by Sarah,[1] who, in that respect, was an image of the natural reason. And, therefore, the more absurd and incredible any divine mystery is, the greater honor we do to God in believing it; and so much the more noble the victory of faith: as sinners, the more they are oppressed in conscience, yet relying upon the mercy of God for salvation, honor him the more; for all despair is a kind of reproaching the Deity. And if well considered, belief is more worthy than knowledge; such knowledge, I mean, as we have at present: for in knowledge, the human mind is acted upon by sense, which results from material things; but in faith, the spirit is affected by spirit, which is the more worthy agent. It is otherwise in the state of glory: for then, faith shall cease, and we shall know as we are known.[2]

Let us, therefore, conclude, that sacred theology must be drawn from the word and oracles of God;[3] not from the light of nature, or the dictates of reason. It is written, that "the heavens declare the glory of God": but we nowhere find it, that the heavens declare the will of God, which is pronounced a law, and a testimony, that men should do according to it, etc. Nor does this hold only in the great mysteries of the Godhead, of the creation, and of the redemption, but belongs, also, to the true interpretation of the moral law. "Love your enemies, do good to them

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[1] Gen. xviii. [2] I. Cor. xiii. 12. [3] Psal. xviii. 2.

that hate you," etc., "that ye may be the children of your heavenly Father, who sends his rain upon the just and the unjust."[4] Which words are more than human—

"Nec vox hominem sonat"—[5]

and go beyond the light of nature. So the heathen poets, especially when they speak pathetically, frequently expostulate with laws and moral doctrines (though these are far more easy and indulgent than divine laws), as if they had a kind of malignant opposition to the freedom of nature—

——"Et quod natura remittit
Invida jura negant";[6]

according to the expression of Dendamis, the Indian, to the messengers of Alexander; viz., "That he had heard, indeed, somewhat of Pythagoras, and the other wise men of Greece, and believed them to have been great men; but that they held a certain fantastical thing, which they called law and morality, in too great veneration and esteem."[7] We cannot doubt, therefore, that a large part of the moral law is too sublime to be attained by the light of nature: though it is still certain, that men, even from the light and law of nature, have some notions of virtue, vice, justice, wrong, good, and evil.

We must observe, that the light of nature has two significations; 1, as it arises from sense, induction, reason, and argument, according to the laws of heaven and earth; and 2, as it shines in the human mind, by internal instinct, according to the law of conscience, which is a certain spark, and, as it were, a relique of our primitive purity. And in this latter sense, chiefly, the soul receives some light, for beholding and discerning the perfection of the moral law; though this light be not perfectly clear, but of such a nature as rather to reprehend vice than give a full information of duty; whence religion, both with regard to mysteries and morality, depends upon divine revelation.

[4] Matt. v. 44, 45.
[5] Æneid, i. 332.
[6] Ovid, Metam. x. 330.
[7] Strabo, xv.

Yet the use of human reason in spiritual things is various, and very extensive: for religion is justly called a reasonable service.[8] The types and ceremonies of the old law were rational and significative, differing widely from the ceremonies of idolatry and magic: which are a kind of deaf and dumb show, and generally uninstructive even by innuendo. But the Christian faith, as in all things else, excels in this, that it preserves the golden mean in the use of reason, and dispute the child of reason, between the laws of the heathens and of Mahomet, which go into extremes: for the heathen religion had no constant belief or confession, and the Mohammedan forbids all disputes in religion:[9] whence one appears with the face of manifold error, the other as a crafty and subtile imposture; while the sacred Christian faith both receives and rejects the use of reason and dispute under due limitation.[10]

The use of human reason in matters of religion is of two kinds; the one consisting in the explanation of mysteries, the other in the deductions from them. As to the explanation of mysteries, we find that God himself condescends to the weakness of our capacity, and opens his mysteries, so as they may be best understood by us; inoculating, as it were, his revelations into the notions and comprehensions of our reason, and accommodating his inspirations to the opening of our understanding, as a key is fitted to open the lock. Though, in this respect, we should not be wanting to ourselves: for as God makes use of our reason in his illuminations, so ought we likewise to exercise it every way, in order to become more capable of receiving and imbibing mysteries; provided the mind be enlarged, according to its capacity, to the greatness of the mysteries, and

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[8] St. Paul, Rom. xii. 1.

[9] This is erroneous. The Mohammedan religion, though not divided into so many churches as the Christian, is, notwithstanding, disturbed by the cry of conflicting parties under the generic titles of Soonees and Sheeahs; the former comprise the orthodox, the latter the heretics. It is needless to add that the hatred of the rival sects is most cordial and intense.—*Ed.*

[10] Hooker, Eccles. Polit.

not the mysteries contracted to the narrowness of the mind.

With regard to inferences, we must know that we have a certain secondary and respective, not a primitive and absolute, use of reason and arguing left us about mysteries. For after the articles and principles of religion are so seated, as to be entirely removed from the examination of reason, we are then permitted to draw inferences from them, agreeable to their analogy. But this holds not in natural things, where principles themselves are subject to examination by induction, though not by syllogism, and have, besides, no repugnance to reason: so that both the first and middle propositions are derivable from the same fountain. It is otherwise in religion, where the first propositions are self-existent, and subsist of themselves, uncontrolled by that reason which deduces the subsequent propositions. Nor is this the case in religion alone, but likewise in other sciences, as well the serious as the light, where the primary propositions are postulated: as things wherein the use of reason cannot be absolute. Thus in chess, or other games of the like nature, the first rules and laws of the play are merely positive postulates, which ought to be entirely received, not disputed: but the skilful playing of the game is a matter of art and reason. So, in human laws, there are numerous maxims, or mere placits of law received, which depend more upon authority than reason, and come not into dispute. But, then, for the inquiry, what is not absolutely, but relatively most just herein: viz., in conformity with those maxims; this, indeed, is a point of reason, and affords a large field for dispute. Such, therefore, is that secondary reason which has place in sacred theology, and is founded upon the good pleasure of God.

And as the use of human reason, in things divine, is of two kinds, so it is attended with two excesses: 1, the one, when it too curiously inquires into the manner of a mystery; 2, the other, when it attributes an equal authority to the inference as to the principles. For he may seem a disciple

of Nicodemus, who shall obstinately inquire, "How can a man be born when he is old"?[11] But he can be esteemed no disciple of St. Paul, who does not sometimes insert in his doctrine, "I, not the Lord," or, according to my judgment,[12] which is the style that generally suits with inferences. Whence it seems a thing of capital use and benefit, to have a sober and diligent treatise wrote concerning the proper use of human reason in divinity, by way of a divine logic. For this would be like an opiate in medicine; and not only lay asleep those empty speculations which sometimes disturb the schools, but also allay that fury of controversy which raises such tumults in the church. This treatise, therefore, we place among the things that are wanted, under the name of the Moderator, or the true Use of human Reason in Theology.

It is of the utmost importance to the peace of the church, to have the covenant of Christians prescribed by our Saviour in two particulars that seem somewhat contradictory, well and clearly explained; the one whereof runs thus: "He who is not with us is against us";[13] and the other thus: "He who is not against us is for us";[14] whence it plainly appears, that there are some points wherein he who differs is to be excluded the covenant; and others again, wherein Christians may differ, and yet keep terms. The bonds of the Christian communion are, one faith, one baptism,[15] etc., not one ceremony, one opinion, etc. Our Saviour's coat was seamless;[16] but the garment of the church of many colors. The chaff must be separated from the wheat, but the tares in the field are not to be hastily plucked up from the corn. Moses, when he saw the Egyptian contending with the Israelite, did not say, "Why strive ye?" but drew his sword, and killed the Egyptian; but when he saw two Israelites fighting together, though the cause of one of

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[11] John iii. 4.
[12] I. Cor. vii. 12.
[13] Matt. xii. 30, and Luke xi. 23.
[14] Luke ix. 50.
[15] St. Paul, Eph. ix. 51.
[16] St. John xix. 23.

them might have been unjust, yet he says to them, "Ye are brethren, why strive ye"?[17] All which being well considered, it seems a thing of great use and moment to define what, and of how great latitude those matters are, which totally cut off men from the body of the church, and exclude them the communion of the faithful. And if any one shall imagine this done already, we advise him seriously to reflect, with what justice and moderation. But it is highly probable, that whoever speaks of peace will meet with that answer of Jehu to the messenger: "What has peace to do with Jehu?—What hast thou to do with peace?—Turn, and follow me."[18] For the hearts of most men are not set upon peace, but party. And yet we think proper to place among the things wanting, a discourse upon the degrees of unity in the city of God, as a wholesome and useful undertaking.

The holy Scriptures having so great a share in the constitution of theology, a principal regard must be had to their interpretation. We speak not of the authority of interpreting, established by the consent of the church, but of the manner of interpreting, which is either methodical or loose. For the pure waters of divinity are drawn and employed, nearly in the same manner as the natural waters of springs; viz., 1, either received in cisterns, and thence derived through different pipes, for the more commodious use of men; or 2, immediately poured into vessels for present occasions. The former methodical way has produced the scholastic divinity, whereby the doctrine of theology is collected into an art, as in a cistern; and thence distributed around, by the conveyance of axioms and positions.

But the loose way of interpreting has two excesses: the one supposes such a perfection in the Scriptures, that all philosophy should be derived from their fountains, as if every other philosophy were a profane and heathenish thing. And this distemper principally reigned in the school of Paracelsus, and some others, though originally

[17] Exodus ii. 13.

[18] IV. Kings ix. 19.

derived from the rabbis and cabalists. But these men fail of their end; for they do not, by this means, honor the Scriptures as they imagine, but rather debase and pollute them. For they who seek a material heaven, and a material earth, in the word of God, absurdly seek for transitory things among eternal. To look for theology in philosophy is looking for the living among the dead, and to look for philosophy in theology is to look for the dead among the living.

The other excess, in the manner of interpretation, appears, at first sight, just and sober; yet greatly dishonors the Scriptures, and greatly injures the church, by explaining the inspired writings in the same manner as human writings are explained. For we must remember, that to God, the author of the Scriptures, those two things lie open which are concealed from men; the secrets of the heart, and the successions of time. Therefore, as the dictates of Scripture are directed to the heart, and include the vicissitudes of all ages, along with an eternal and certain foreknowledge of all heresies, contradictions, and the mutable states of the church, as well in general as in particulars, these Scriptures are not to be interpreted barely according to the obvious sense of the place, or with regard to the occasion upon which the words were spoken, or precisely by the context, or the principal scope of the passage, but upon a knowledge of their containing, not only in gross or collectively, but also distributively, in particular words and clauses, numberless rivulets and veins of doctrine, for watering all the parts of the church and all the minds of the faithful. For it is excellently observed, that the answers of our Saviour are not suited to many of the questions proposed to him, but appear, in a manner, impertinent: and this for two reasons, 1, because as he knew the thoughts of those who put the question, not from their words as men know them, but immediately, and of himself, he answered to their thoughts, and not to their words; and, 2, because he spoke not to those alone who were present, but to us, also, now living, and to the

men of every age and place, where the Gospel shall be preached. And this observation holds in other parts of Scripture.

We find, among theological writings, too many books of controversy; a vast mass of that we call positive theology, commonplaces, particular treatises, cases of conscience, sermons, homilies, and numerous prolix comments upon the several books of the Scriptures: but the thing we want and propose, as our third appendix to theology, is, a short, sound, and judicious collection of notes and observations upon particular texts of Scripture; without running into commonplace, purusing controversies, or reducing these notes to artificial method; but leaving them quite loose and native—a thing we find something done in the more learned kind of sermons, which are seldom of long duration, though it has not hitherto prevailed in books designed for posterity. But certainly, as those wines which flow from the first treading of the grape are sweeter and better than those forced out by the press, which gives them the roughness of the husk and the stone; so are those doctrines best and wholesomest, which flow from a gentle crush of the Scripture, and are not wrung into controversies and commonplace. And this treatise we set down as wanting, under the title of the first flowings of the Scriptures.

And now we have finished our small globe of the intellectual world with all the exactness we could, marking out and describing those parts of it which we find either not constantly inhabited or not sufficiently cultivated. And if through the course of the work we should anywhere seem to depart from the opinion of the ancients, we would have it remembered that this is not done for the sake of novelty, or striking into different paths from them, but with a desire of improving; for we could neither act consistently with ourselves nor the design, without resolving to add all we could to the inventions of others, at the same time wishing that our own discoveries may be exceeded by those of posterity. And how fairly we have dealt in this matter may

appear from hence, that our opinions are everywhere proposed naked and undefended, without endeavoring to bribe the liberty of others by confutations; for where the things advanced prove just, we hope that if any scruple or objection arise in the first reading, an answer will of itself be made in the second. And wherever we have erred, we are certain to have done no violence to the truth by litigious arguments, the effect whereof is the procuring authority to error, and detracting from what is well invented; for error receives honor and truth a repulse from contention.

And here I cannot but reflect how appositely that answer of Themistocles may be applied to myself which he made to the deputy of a small village haranguing upon great things, "Friend, thy words require a city." For so it may be said of my views, that they require an age, perhaps a whole age, to prove, and numerous ages to execute. But as the greatest things are owing to their beginnings, it will be enough for me to have sown for posterity, and the honor of the Immortal Being, whom I humbly entreat, through his Son, our Saviour, favorably to accept these, and the like sacrifices of the human understanding, seasoned with religion, and offered up to his glory!

THE COAST OF

THE NEW INTELLECTUAL WORLD

OR A RECAPITULATION OF THE DEFICIENCIES OF KNOWLEDGE, POINTED OUT IN THE PRECEDING WORK, TO BE SUPPLIED BY POSTERITY

THE History of Monsters; or irregular productions of nature, in all the three kingdoms—vegetable, animal, and mineral.

The History of Arts; or nature formed and wrought by human industry.

A well-purged History of Nature in her extent; or the phenomena of the universe.

Inductive History; or historical matters consequentially deduced from phenomena, facts, observations, experiments, arts, and the active sciences.

A Universal Literary History; or the affairs relating to learning and knowledge, in all ages and countries of the world.

Biography; or the lives of all eminent persons.

The History of Prophecy; or the accomplishment of Divine predictions, to serve as a guide in the interpretation of prophecies.

The Philosophy of the Ancient Fables; or a just interpretation of the mythology of the ancients.

Primary Philosophy; or a collection of general axioms, subservient to all the sciences.

Physical Astronomy: or a philosophical history of the heavens.

A Just Astrology; or the real effects of the celestial bodies upon the terrestrial.

A Calendar of Doubts; or natural problems, to be continued through all ages, along with a calendar of vulgar errors.

A Collection of the Opinions of the Ancient Philosophers.

An Inquiry into the Simple Forms of Things; or that which constitutes their essences and differences.

Natural Magic; relative to the doctrine of forms.

An Inventory of Knowledge; or an account of the stock of learning among mankind.

A Calendar of leading Experiments; for the better interpretation of nature.

Short and commodious Methods of Calculation, in business, astronomy, etc.

The Doctrine of Gesture; or the motions of the body, with a view to their interpretation.

Comparative Anatomy between different Human Bodies.

A work upon Incurable Diseases, to lessen their number, and fix a true notion of incurable in medicine.

The Laudable Means of procuring easy Deaths.

A Set of approved and effectual Remedies for Diseases.

The Ways of Imitating Natural Springs and Bath Waters.

The Filum Medicinale; or Physician's Clew in Prescription.

A Natural Philosophy fundamental to Physic.

The Ways of Prolonging Life.

An Inquiry into the Nature and Substance of the sensitive Soul.

The Doctrine of Muscular Motion; or the efficacy of the spirits in moving the body.

The Doctrine of Sense and Sensibility; or the difference between perception and sense.

An Inquiry into the Origin and Form of Light; or the foundation of optics.

The Art of Inventing Arts.

The True Use of Induction in Philosophy.

The Art of Indication or Direction in Philosophy.

A Learned or Sagacious Kind of Experience, different from the vulgar, and leading to the direct improvement of arts.

A Particular Topical Invention, directed by the light of leading questions, or proper heads of inquiry.

The Doctrine of Idols; or a detection and confutation of the prejudices, false conceptions, and errors of the mind.

A New Engine; or helps for the mind corresponding to those of the hand.

An Appendix to the Art of Judgment; assigning the kinds of demonstration proper to every subject.

An Interpretation of the Marks, Signatures, or Impressions of things.

A Philosophical Grammar; or an account of the various properties of different languages, in order to form one perfect pattern of speech.

The Traditive Lamp; or the proper method of delivering down the sciences to posterity.

The Doctrine of Prudence in private discourse; or colors of good and ill.

A Collection of Sophisms, with their confutations.

A Collection of studied Antithets; or short and strong sentences, on both sides of the question, in a variety of subjects.

A Collection of lesser Forms of Speech, for all the occasions of writing and speaking.

Sober Satire; or the insides of things.

The Georgics of the Mind; or the means of procuring the true moral habit of virtue.

An Account of the Characters or Natures of Persons.

The Doctrine of the Affections, Passions, or Perturbations of the Mind.

The Secretary to the Uses of Life; or the doctrine of various occasions.

The Doctrine of Business; or books upon all kinds of civil employments, arts, trades, etc.

Self-Policy, the doctrine of rising in life; or the means of advancing a man's private fortune.

The Military Statesman; or the political doctrine of enlarging the bounds of empire.

The Doctrine of Universal Justice; or the fountains of equity.

The Moderator in Divinity; or the true use of human reason in the business of revelation.

The Degrees of Unity in Religion adjusted, with a view to preserve the peace of the Church.

The First Flowings of the Scriptures; or a set of short, sound, and judicious notes upon particular texts, tending to use and practice.

END OF "ADVANCEMENT OF LEARNING"